THE BUILDER

Incorporating

ARCHITECTURE & THE BRITISH ARCHITECT

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THIS WEEK'S NEWS

THE GOVERNMENT have decided to restore in full the cuts they made two years ago in the programme drawn up after the war for expanding the work of the DSIR, and of the research associations financed through it. p. 869

IT WOULD BE an advantage to take appropriate measures to ensure that workers in the construction industry are protected from the consequences of instability of employment, states a memorandum that was adopted recently by the International Labour Organisation. p. 887

THE OPERATIVES' CLAIM for a general wage increase of 9d. an hour is included in the full list which is now available of the Notices to be considered in January next for constitutional amendments of the constitution and working rules of the National Joint Council for the Building Industry. p. 887

THE FIRST of two articles on Concrete Mixes and Proportions appears on p. 889

LONG-TERM PROPOSALS for the training of general foremen are contained in the recently published Second Report of the Standing Committee for the Training of General Foremen in the Building Industry. p. 893

MR. G. W. GROSVENOR has been nominated as next year's president of the National Federation of Building Trades Employers. p. 893

DETAILS of Exchequer grants to local authorities to enable them to carry out the proposals put forward in the Housing Repairs and Rents Bill were announced by Mr. Marples, Parliamentary Secretary, Ministry of Housing and Local Government, when the Bill was debated on Monday and Tuesday last. p. 899

UNDER BUILDING licensing arrangements for 1954 the free-limits for industrial and agricultural work will be raised from £2,000 to £25,000, and the free-limit for all other work will be raised from £500 to £1,000. p. 899

IMPROVING SUB-STANDARD HOUSES

TWO interesting experiments in the improvement of old sub-standard houses by the installation of hot water and bathrooms and other amenities have lately been carried out. The first, at Croydon, undertaken by Federated Foundries, Ltd., of London, was described in our issue for July 3. The second, carried out at Stockton-on-Tees by Allied Ironfounders, Ltd., of London, is recorded in an illustrated book recently issued.

In the introduction to this report it is pointed out that the majority of these old houses are well and solidly built, and remain structurally sound; far too sound to be scrapped in any housing situation that can be envisaged within the next 20 to 30 years. It is, in fact, estimated that this country contains eight million houses built prior to 1914, replacement of which, at present building rates, cannot begin before 1972. But though sound in structure, in other respects they fall far below modern standards, particularly in their rudimentary sanitary arrangements, and entire lack of bathrooms or even of a satisfactory means of heating water.

Nor, unfortunately, are these deficiencies of a kind which under the existing machinery can easily be put right. Notices served by the local authority under the Housing Act can secure some improvement in such dwellings—and, apart from structural and sanitary work as such, may extend to the improvement of sculleries, and the installation of pantries. But, in present conditions, the scope of such notices has in practice usually been confined to works which can be carried out for an expenditure of some £40–£50. Obviously, hot-water installations and bathrooms can be provided only by the expenditure of a very much larger sum than this.

Such a situation cannot continue indefinitely, at a period when the accepted Standards of Fitness for Dwelling-Houses* lay down, among other requirements, that a satisfactory house should be "provided with an efficient and adequate means of supplying hot water for domestic purposes" and "have a fixed bath, preferably in a separate room." Some means must be found by which these houses—in which some twelve million people will live for the next 30 years, and bring up one or even two more generations of children—can economically be raised to a reasonable standard, and means to achieve these ends will no doubt be incorporated in the Housing Repairs and Rents Bill—before the House of Commons earlier this week—when it emerges from the Committee stage.

For a considerable time, the problem of the sub-standard house has been under consideration by ironfounders, as a matter of legitimate concern to their industry as a whole, and particularly to its light casting section, on whom falls the responsibility of developing and producing in the appropriate quantities the domestic appliances required by each stage of the housing programme.

It was for this reason that the Stockton Test was initiated and carried out, a test which, it is hoped, has served a double purpose—being at one and the same time a field trial, designed to reveal the problems met in rehabilitating a block of typical sub-standard houses; and a full-scale demonstration of what results may be expected from such an undertaking.

Stockton-on-Tees was chosen as an appropriate testing-ground, because it is representative of conditions throughout the industrial North (and, for that matter, throughout industrial Britain). The development first of the Durham coalfields, and then of the ironstone deposits in the Cleveland Hills, led to a period of rapid expansion in this area during the latter part of last century, during which time the population of the Borough of Stockton increased by nearly 40,000. Most

* Report of the Standards of Fitness for Habitation sub-Committee of the Central Housing Advisory Committee, Ministry of Health, 1946.

of the housing then built, to accommodate this expanding population, remains in occupation to-day.

Four such houses—38, 40, 42, and 44, Alliance-street—were acquired by Allied Ironfounders, for conversion. Each is a typical passage house with sitting-room, kitchen, off-shoot scullery, and two bedrooms. Sanitation is provided by an external w.c., in the yard; there is no bathroom or hot-water supply. As houses they are in fact no better and no worse than hundreds of thousands of others which can be seen throughout the industrial areas of Britain.

Plans were drawn up for a conversion which would include the demolition of the small, cramped scullery, and of the existing coal-store and outside lavatory. In their place, a new brick structure would be built into the back yard, housing an enlarged scullery of more modern and practical design, a bathroom and w.c. Heating would be catered for by the installation in the kitchen (in place of the old-fashioned range) of a modern combination grate with back boiler, serving the triple purpose of heating the room, cooking and providing a constant supply of hot water.

The test throughout was designed as a practical trial of what would be possible to the ordinary owner of property of this type, and no special concessions were, therefore, desired or requested—although Allied Ironfounders acknowledge the co-operation and help received from the local authority and the Ministry of Housing at every stage. In particular, all plans were submitted in the usual way, and all by-laws and other requirements scrupulously adhered to. For example, extreme care was required in planning the conversion, so as to produce a scullery, bathroom and w.c. (with inside access) of maximum size whilst retaining the prescribed 150 sq. ft. of yard area. Similarly, modifications required to bring the existing water supply and drainage system into line with present-day requirements were carried out during the conversion.

The building and plumbing operations required are simple and straightforward, and could be carried out by any competent builder in any part of the country. In this case, the builders—a Stockton firm—moved on to the site on March 19, 1953. Twenty-three days later, the first house had been converted, and by April 17 work on the last had been completed, and the workmen were off the site again.

The effects may best be judged from the illustrations in this book, showing the properties before and after conversion. They have been summed up by the chief sanitary inspector of the Borough in the following words: "These four houses will provide, in my opinion, a living unit of a reasonable standard. They cannot, of course, compare with modern houses, whether semi-detached or otherwise, but it does seem from the social angle, that as it is possible that another generation of children will be raised in them, the houses will give the tenants the minimum amenities which we expect to-day."

On completion of the work, a careful analysis was made of the costs involved—and of the financial commitments involved to the property-owner, the local authority, and the tenant.

The total cost of the work comprised in the test was found to be £350 per house. Of this sum, application having been made for an improvement grant under the terms of the 1949 Housing Act, 50 per cent. (£175) was found by the local authority. The remaining £175 was provided by Allied Ironfounders, as owners.

This total cost of £350, borne equally by the property owner and the local authority, compares with a current cost of about £1,550 each for the council houses at present being built on the Borough's housing estates.

The Housing Act 1949 permits the landlord to increase the annual rental by 6 per cent. of his part of the sum spent on such improvements—in this case, equivalent to an extra 4s. per week per house. From the tenant's point of view, this increase is at least in part offset by the saving in fuel costs offered by a modern solid-fuel appliance, as against the previous and uneconomic method of heating water in small quantities on a gas stove. With this increase, the rents would be in the region of only 13s. 6d. per week, as compared with 22s. 2d. a week for a council house of equal accommodation.

Investigations made among neighbours of the houses concerned in the test, who have seen the results, and are aware of the probable increase of rent involved, show a general appreciation of the advantages, and a wish that the scheme could be extended to the entire street.

Whatever the advantages to the nation and to the tenant, from the owner's point of view it is, in present circumstances, a doubtful investment. Whilst the increase of rental is limited to 6 per cent., out of which the owner has to meet repairs and renovations, pay his Schedule A Tax, and recoup his capital, the margin is a very slender one. This is, no doubt, why owners of such property have in general been slow to take advantage of the facilities offered them. In the entire country, only just under 3,000 improvement grants have as yet been applied for. In Stockton, a town of some 20,000 houses, of which nearly 7,000 are without baths, the number of grants so far applied for is only 15. Mr. Macmillan's Bill does something to make such improvements an economic proposition.

The purpose of the Stockton test is, in fact, more than merely to provide a practical demonstration of what can be done to bring old and sub-standard houses up to a more modern level of comfort and convenience. Allied Ironfounders hope that it may also draw attention to the problem as a whole, and to the need for encouraging such renovations in the interests of the nation, the local authority, the tenant, and of the property owner himself.

COST OF CONVERSION

The estimated cost of conversion, on which was based the application for improvement grants, was £350 per house. The actual costs approximated closely to this figure. Contingencies in respect of the water supply, which had not been anticipated but which materialised while the work was in progress, were responsible for a small additional cost.

The final account was as follows:

Trade	Labour	Materials	Total
	£ s. d.	£ s. d.	£ s. d.
Main contractor and plasterer ..	325 15 9½	533 8 11½	859 4 9
Electrician	14 6 8	10 3 6	24 10 2
Roofer (decking and finish) ..	—	—	120 0 0
Plumber and glazier	114 11 8	281 2 5	395 14 1
			£1,399 9 0
		Cost per house	£349 17 3

NOTE.—Owing to the existing ⅝-in. service supplying eight houses, the pressure of water was very poor and it was necessary to install a new ½-in. supply to each house so as to operate the hot-water system. The cost per house for this work was £20. Painting and decorating was excluded from the contract as this would normally be done by the tenant.

Messrs. Moore and Cartwright were the builders, and Mr. R. Cowan, ARIBA, the architect.

The book to which we have referred contains a full description of the experiment, together with plans and a number of photographic and other illustrations. The promoters are to be congratulated on their enterprise in carrying out this experiment, which is of obvious advantage to the community. Copies of the book will be sent free on request to Mr. N. G. Streat, Allied Ironfounders, Ltd., 28, Brook-street, London, W1.

NOTES & NEWS

RESEARCH CUTS TO END

THE welcome news that the Government has decided to restore in full the cuts they made two years ago in the programme drawn up after the war for expanding the work of the DSIR, and of the research associations financed through it, was announced last week by SIR IAN HEILBRON, FRS, chairman of the Advisory Council for Scientific and Industrial Research. What was perhaps of even greater importance, he said, was that they would be empowered, "by an absolute revolution in the affairs of State," to plan research broadly on a five-year basis. That would make possible, as had been urged for many years, flexibility and continuity of policy.

BUILDING LICENSING

AN IMPORTANT STEP towards freedom for the building industry was announced by SIR DAVID ECCLES, Minister of Works, in Parliament on Monday. Sir David Eccles said that, under building licensing arrangements for 1954, the free limits for industrial and agricultural work will be raised from £2,000 to £25,000, and the free-limit for all other work will be raised from £500 to £1,000.

In addition, a further degree of freedom will be given to the private house builder. From January 1 next, local authorities will give licences automatically for houses up to 1,500 sq. ft. in size and for not more than 50 houses at a time. They will also have discretionary powers to issue licences for houses up to 2,500 sq. ft.

The Minister's statement is given in full in "In Parliament" on page 899, together with a report of the housing debate.

MINISTRY APPOINTMENT

THE MINISTER OF HOUSING AND LOCAL GOVERNMENT has appointed Col. J. H. Harrison, TD, MA, MP, to be his Parliamentary Private Secretary in succession to Mr. J. R. Bevins, MP, who has been appointed Parliamentary Secretary to the Ministry of Works.

HELP FOR THE ABS

THE DANCE given by Mrs. Montgomery at the Building Exhibition, in aid of the Architects' Benevolent Society and other charities, was most pleasant, and their funds should benefit considerably as a result. Bill Savill's band provided excellent music for dancing. Earlier in the day, Mrs. Montgomery had been presented by the directors of Olympia with a piece of silver, in the form of a miniature wheelbarrow, to mark the Exhibition's Silver Jubilee and a happy association with her family since 1907.

This dance, by the way, is not to be confused with the Architects' Ball at the Dorchester, to be held on Wednesday next, December 9, which is in aid of the ABS. For this event there is still just time to buy tickets, which cost 2 gns. each, including supper; they can be obtained from the Hon. Organising Secretary, c/o, Mr. C. J. Epril, FRIBA, 55, Pall Mall, SW1. The committee welcomes gifts for use as prizes on sideshows, particularly "bottled goods."

MR. SPENCE IN CANADA

THE TOUR OF CANADA which Mr. Basil Spence is making in company with the Dean of Coventry and the Bishop's Chaplain is proving very successful. The three emissaries are now in Montreal after their journey to Vancouver and back, and much interest and financial support has been raised for the new Cathedral, of which models and drawings have been shown at each of the lectures given. Mr. Spence is reported to be "sick of the sound of his own voice," but those who have heard him lecture on the Cathedral will be hardly likely to agree. Mr. Spence arrives back in this country at the end of next week.

NEW LONDON HOTEL

IT HAS been announced by Savoy Hotel, Ltd., who own the Berkeley Hotel, Berkeley-street, Mayfair, that Mr. Howard Robertson, president of the Royal Institute of British Architects, has designed a new hotel to be built on the same site.

The project is believed to be in an advanced stage, preliminary town planning approval having been received from the LCC. The hotel will accommodate 300.

COMING EVENTS

SATURDAY, DECEMBER 5

ROYAL ACADEMY OF ARTS.—Winter exhibition on "Flemish Art, 1300–1700." Burlington House, Piccadilly, W1.

BUILDING TEACHERS' CONFERENCE.—Conference. Polytechnic, Regent-street, W1. 10.45 a.m.

INSTITUTE OF QUANTITY SURVEYORS (MIDLANDS BRANCH).—"Controversial Matters in Quantity Surveying," by Mr. G. M. Johns, ARICS, AIQS, and Mr. J. M. Hartley, FIQS. Birmingham Chamber of Commerce. 3 p.m.

MONDAY, DECEMBER 7

RIBA.—Travelling Exhibition "Home and Surroundings." Mortimer Museum, Carr-lane, Hull. Continuing until December 19.

RICS.—"The Ordnance Survey and Archaeology," by Mr. C. W. Phillips, MA, FSA. 12, Great George-street, SW1. 5.30 p.m.

INSTITUTION OF ELECTRICAL ENGINEERS.—Discussion on "The Ridley Report." Savoy-place, WC2. 5.30 p.m.

TUESDAY, DECEMBER 8

RIBA.—"Building Without Grace—An Aggressive Examination," by Mr. Siegfried Charoux, ARA. 66, Portland-place, W1. 6 p.m.

HAMMERSMITH SCHOOL OF BUILDING AND ARTS AND CRAFTS.—Prize distribution, by Mr. Gordon Russell, CBE, RDI. Town Hall, Hammersmith. 7 p.m. Exhibition of students' work will open at 3.30 p.m. at the School.

ILLUMINATING ENGINEERING SOCIETY.—"Lighting for Textile Production," by Mr. H. Hewitt. London School of Hygiene and Tropical Medicine, Keppel-street, WC1. 6 p.m.

WEDNESDAY, DECEMBER 9

ARCHITECTURAL ASSOCIATION.—Recital by Donald Andrew (oboe) and Adela Hamaton (piano). 34, Bedford-square, WC2. 8 p.m.

LMBA (CENTRAL AREA No. 1).—Luncheon, to be followed by a general meeting at which Mr. E. L. Jones, MBE Secretary, NFBTO (LRC) will be present. Derry and Tom's Restaurant, Kensington High-street, W8. 1 p.m.

REINFORCED CONCRETE ASSOCIATION.—"The Principles and Practical Applications of Partially Prestressed Concrete," by Dr. P. W. Abeles, DSc, MIStructE. 11, Upper Belgrave-street, SW1. 6 p.m.

THURSDAY, DECEMBER 10

RIBA.—"Charles Rennie Mackintosh," by Dr. Howarth, ARIBA. Also exhibition of his work, to continue until December 23. 66, Portland-place, W.1. 6 p.m.

ENGINEERS' GUILD, LTD. (METROPOLITAN BRANCH).—Illustrated talk on "Old Windmills," by Mr. Rex Wailes, FSA. Caxton Hall, Westminster. 6 p.m.

FRIDAY, DECEMBER 11

BIRMINGHAM AND FIVE COUNTIES AA.—"Landscape Architecture," by Mr. Peter Shepheard, BArch, ARIBA, AMTPI, AMILA Royal Birmingham Society of Artists' Galleries, New-street, Birmingham. 6 p.m.

"Those men can't stop discussing Sheffield, even at an ABS Ball."

*** *The ABS Ball will be held at the Dorchester, W1, on Wednesday next, December 9. Tickets, price £2 2s. each, from Mr. C. J. Epril, FRIBA, 55, Pall Mall, SW1.*

BARBERS' HALL

THE MASTER and the Court of Assistants of the Barbers' Company have had under consideration the rebuilding of their Hall on the Monkwell-street site, owned by the Barbers Company since 1381, and Mr. Kenneth M. B. Cross, FRIBA, has been appointed architect.

The old Hall, designed by Inigo Jones in 1634, was totally destroyed by the disastrous air-raid in December, 1940. The old Hall was illustrated in *The Builder* of January 26, 1917.

BUILDING TEACHERS MEET

THE NEXT MEETING of the Building Teachers' Conference will be held at the Regent-street Polytechnic, W1, on December 5. The conference will be opened by the president, Mr. D. A. G. Reid, MICE, who will introduce the speaker for the morning subject, Mr. S. H. Loweth, FRIBA, Kent County Architect, whose subject will be "Design and the Craftsman." The annual general meeting will be held in the afternoon, followed by an address by the incoming president, Mr. W. Lee, FIOB. Afterwards, Mr. J. Brosgall, secretary, Southern Regional Council for Further Education, will speak on "The Formation of a Technical Information Panel."

PROFESSIONAL ANNOUNCEMENT

MESSRS. JOHN LIVERSEDGE AND ASSOCIATES, civil and structural consulting engineers, have moved to new offices at 42, Portland-place, W1 (Tel: Langham 7881–3).

FROM "THE BUILDER" OF 1853

Saturday, December 3, 1853

MODERN ADAPTATION OF ANCIENT ARCHITECTURE. — At the opening meeting of the Architectural Institute of Scotland on the 24th ult. Mr. Alexander Christie, director of the School of Design, read a paper "On the Adaptation of Previous Styles to Our Wants." We were met, he said, at the threshold of the investigation of this subject by the question, "Why adopt any previous style whatever—why not invent a new one?" The answer to this was, "We did not require any new style of building."

CORRESPONDENCE

ARCHITECTS AND THE PRESS

To the Editor of *The Builder*

SIR,—I am grateful to Mr. Pembroke Wicks for his letter in your last issue explaining the exact significance of the regulation in the ARCUK Code of Conduct relating to architectural publicity in the professional Press. No architect need now hesitate to offer suitable work for publication should he wish to do so.

I feel, however, that the choice of words warning against soliciting *for the purpose of increasing his practice* is unhappy. Is there really anything discreditable in an architect's wishing to increase his practice provided that he does not violate the Code of Conduct? We are all urged to work harder nowadays. This caution could be better worded without weakening the intended effect.

May I suggest that the RIBA should also make it clear in the Code of Professional Conduct that architects may not only *allow* but *offer* illustrations and descriptions of their work for publication? If this were done there could be no possibility of confusion or misunderstanding on this question of Press publicity.

PROVINCIAL.

THE RICS AND SURVEYORS' QUALIFICATIONS

To the Editor of *The Builder*

SIR,—It would appear from the report on Mr. G. A. Coombe's recent presidential address to the RICS, reported in your issue of November 20, that he is not entirely satisfied with the examination method of producing surveyors and that he would recommend the institution of compulsory articles.

This, I feel, would be a retrograde step, as it would necessarily restrict the inflow and training of newcomers to the profession to a marked degree.

I disagree entirely with Mr. Coombe's views on the status of the RICS and the theory of office training only. I am not alone, I am sure, in my belief in the doctrine of practical experience for all young surveyors on building sites, preferably in the service of a building and civil engineering contractor. Any knowledge gained in this manner is, in my opinion, of greater help to any examinee than several years spent in theoretical training in building construction and office work.

Therefore, it appears that, in order to obtain a professional qualification, many prospective examinees of the RICS are taking "advantage of a less difficult examination and less exacting form of entry provided by the less creditable bodies which go to make up the profession as a whole," to quote Mr. Coombe's own words.

Is it Mr. Coombe's view that only members of the RICS are worthy to be called surveyors and that all others employed with building contractors are out in the wilderness of unqualified men? Perhaps we may hear from Mr. Coombe and others on this subject.

P. ROBERTS.

Alexandra Park, Manchester 16.

THE SOUTH BANK AND A NEW CHARING CROSS BRIDGE

To the Editor of *The Builder*

SIR,—The LCC scheme for the permanent redevelopment of the South Bank, illustrated in your issue for October 23, has received general and deserved commendations. The Council is stated to have prepared plans for the whole of the South Bank from Southwark Bridge to Vauxhall Bridge, but it is not clear whether these plans take account of that greatly needed improvement, the reconstruction of Hungerford railway bridge for vehicular and pedestrian traffic and the transfer of Charing Cross Station to the south side. Sooner or later this improvement is almost certain to be carried out, and any comprehensive plan should provide for it so as to avoid any prior rebuilding that is likely to be in conflict with it when the time comes for action. The following reflections may possibly be of interest to your readers.

Though the illustrations which you published included little outside the Festival of Britain site, it can be assumed that there would be no difficulty in accommodating a new station close to Waterloo. The present Waterloo "Junction" station occupies a considerable site, and any extra land required for a new terminal could be readily obtained, as this area consists largely of small obsolete cottage property overdue for redevelopment.

The first question to be considered is whether a new bridge should be of the high- or the low-level type. Let us take the north side first. A study of this problem will show conclusively, I think, that a low-level bridge is impracticable, for two reasons: (1) it would interfere unduly with the flow of vehicular traffic along the Victoria Embankment, and (2) the gradient required to allow middle arches of sufficient height for steamer traffic (mostly the colliers serving up-river generating stations and gas works) would be far too steep.

A high-level bridge being essential, it would have to start on the north side either from the site of the present Charing Cross Station or from the line of Northumberland-avenue. To throw a great volume of cross-river traffic into the already congested Strand is clearly undesirable, and it is obvious that the approach would have to be from Northumberland-avenue which, at present little used, is organically related to the great circulating area of Trafalgar-square. To provide adequate clearance of the Embankment the gradient of a new high-level bridge would have to begin somewhere within Northumberland-avenue, which would involve a certain amount of demolition and replanning at the Embankment end, but the engineering difficulties should not be insuperable.

A low-level approach is no more desirable or practicable on the south side than on the north, and for similar reasons, and here there are opportunities for a much-needed improvement of the traffic facilities of Waterloo Station. The present main vehicular approach to the station from the Westminster Bridge-road is absurdly inconvenient; it is like entering a house from the back to get to the front door. I suggest, therefore, that the existing railway viaduct on the south side should be retained as part of a new bridge and connected with the high-level roadway of Waterloo Station. Traffic, both vehicular and pedestrian, could thus go straight to the concourse entrances, vehicles turning at the far end of the station front to flow into any traffic (it would probably not be much) still using the Westminster Bridge-road and New Cut approaches.

A roundabout would be necessary on the viaduct of the bridge, perhaps above Belvedere-road, from which a ramp roadway could lead down to connect with the large new *place* which it is proposed to create at the intersection of Waterloo-road with York-road and Stamford-street. Study of the plan given on page 610 of your October 23 issue will show that there is plenty of room for any necessary widening of the viaduct or other structural adjustments.

If, for any reason, it should be considered undesirable to connect the bridge with the new *place* at the Waterloo-road-York-road-Stamford-street intersection, an alternative would be to retain the whole of the existing railway viaduct over the South Bank, including the bridge over the Waterloo-road, as a high-level approach to the new railway terminal. The road could be continued on in an easterly direction and "brought to earth" in a new *place* or roundabout which could be formed in front of the "Old Vic."

The LCC may have considered all the implications of a new bridge and the transfer of Charing Cross station to the south side in their comprehensive plan for this area, but there is nothing in the South Bank illustrations to suggest that that is so. If in fact such a scheme has not been envisaged, now is the time to study the problem, before any large-scale reconstruction is begun.

Except for the ramp roadway, none of the suggestions I have made would affect the present South Bank improvement scheme.

LONDONER.

HOME OF REST FOR BUILDERS

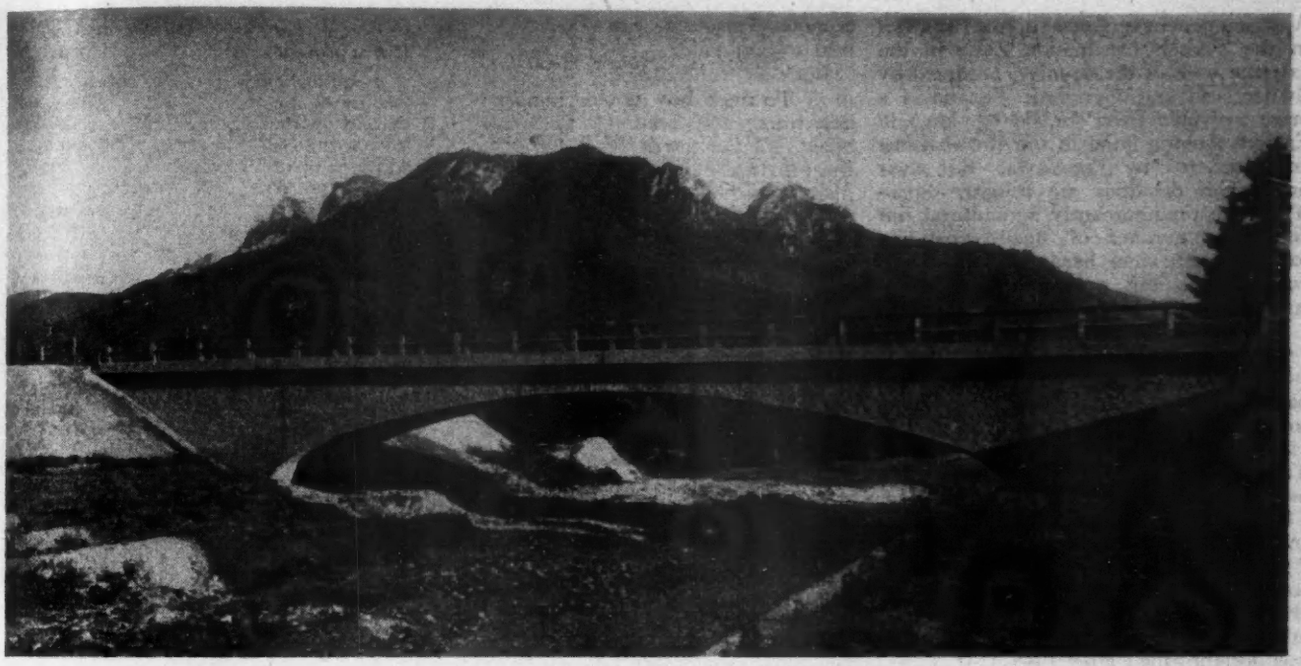
To the Editor of *The Builder*

SIR,—The name of Twickenham means many things to many people—but to builders it is important on account of The Orangery, a house of great charm and distinction with a portico of arched trellis work which must surely be unique. The lawns and trees and flowering shrubs in the spacious grounds make a lovely setting for the house, and the near-by river adds immensely to its charm; truly peace rests upon it.

Here, in an atmosphere of quiet content, dwell some of those builders who, old in years, have ceased from active work and have come here to their Home, to spend the evening of their days. Here also dwell aged dependants of builders who have taken advantage of the facilities offered. We who are still active in the turmoil of the daily round are glad to have the privilege of providing this refuge for those in need.

At the present time the Orangery has room for more residents—the Matron is ready and indeed anxious to receive any who are eligible; particularly perhaps two married couples would be welcome. Any who are interested in the possibilities of the Orangery as a Home are invited to write to the Secretary, the Builders' Benevolent Institution, 47, Bedford-square, WC1, who will be pleased to furnish all details.

R. EDWIN MCALPINE (President), GERALD A. HILL (President, London Master Builders Association), H. J. FALKUS (Hon. Treasurer), P. FOTHERINGHAM PARKER, NIGEL HANNEN, HAROLD DEXTER, R. S. WILLIAMS, D. E. WOODBINE PARRISH.



New bridge over the River Esslingbach, near Admont, Styria.

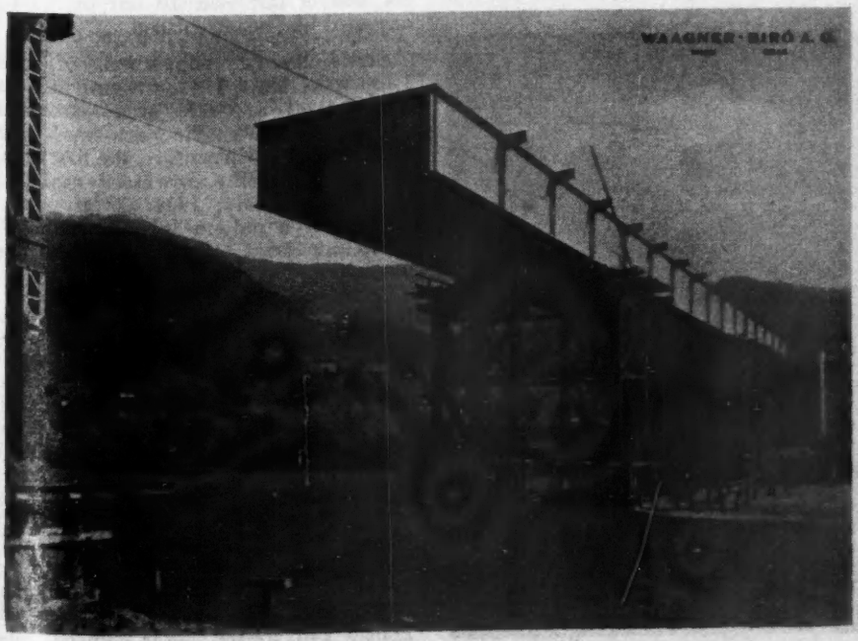
Building in Post-War Austria

By S. GORDON JOSEPH

THE formidable problems affecting building in post-war Austria did not result solely from bombardment towards the end of the war. They were already implicit in the " Anschluss " of 1938, when Hitler's troops marched into Austria and the nation was swallowed up into the German Reich. Germany's economy was on a war footing and, since Austria became directly tied up with it, this meant a sharp decline in new building investment and a curtailment of the various regional and municipal programmes already planned.

From 1943, various parts of Austria were subjected to heavy aerial bombardment from the Allies, ending in invasion from east and west which brought further considerable destruction. Reconstruction would have been a formidable task under the best of conditions, but circumstances could hardly have been worse. For a start, Austria was not, and is not, a highly industrialised nation, although she was beginning to support an improving general standard of living just before the Anschluss.

Then, with the division of the country into the four separate zones of Occupation in 1945, the internal machinery of commerce broke down. Indeed the individual provinces found it easier to trade with bordering foreign countries than among themselves, and made barter agreements with them. Yet, with the exception of Switzerland, neighbours such as Germany, Czechoslovakia, Hungary, Jugoslavia and Italy were themselves acutely suffering the after-effects of war.



Road bridge over the River Mur in the process of reconstruction, autumn 1952.

SHATTERED COMMUNICATIONS

The situation was aggravated by the deterioration or destruction of road and rail communications, so that transport of whatever vital building materials still remained in existence was slowed down to a minimum. Thus communications, and the manufacture of fixed capital and building machinery, had to have absolute production priority in the revival, which meant that the private building of houses and hotels and even their repair would be on a negligible scale for some time. In any case, with current high costs and the low general level of fixed rents, there was little encouragement to build houses, and banks were seldom keen to make loans for such projects. Fortunately, serious runaway inflation has been avoided in the last few years and an increasing confidence in the currency has brought about a higher degree of investment than might originally have been expected.

We can get a more detailed insight into the post-war building situation in Austria by selecting one or two particular provinces for investigation. I shall not deal with the great urban complex of Vienna which cannot be called typical. But the two widely separated provinces of Vorarlberg and Styria (Steiermark) are fairly representative. Vorarlberg is the smallest

Austrian province (2,600 sq. km.) and lies in the French Occupation Zone in the extreme west of the country, bordered by Switzerland and Germany. Styria is a large province (over 16,000 sq. km.) in Eastern Austria lying in the British Zone and bordered by Jugoslavia. But their population densities are roughly equal. They are predominantly agricultural but contain a number of small expanding towns. Both were hard hit by the war and faced a big programme of reconstruction and new building.

HOUSING PROGRESS

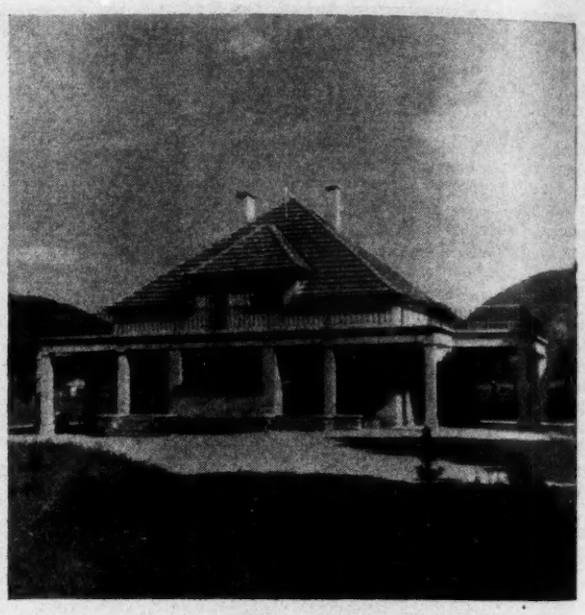
The population of Vorarlberg, through natural increase and the influx of refugees from the Italian South Tirol, rose from 155,000 in 1934 to over 200,000 in 1951. This growth imposed an urgent housing need which was energetically tackled. The building of houses is one of the great achievements of post-war Vorarlberg. To the end of 1951, 2,000 new houses comprising 2,700 dwellings were erected (1952 figures are not available at the time of writing), and the major part of the task was accomplished after 1948.

Of the new buildings, no less than 88 per cent. are one-family houses. In March, 1948, the provincial government, together with the district and municipal authorities, founded a housing estate construction company with headquarters in Dornbirn. Its object was to build houses for the community in accordance with the goal set by the province.

Vorarlberg instituted its own provincial building fund providing interest-free credit under specified conditions, to preserve the continuity of building activity. More than half of the new dwellings were made possible through this financing. Between 1948 and mid-1952, the provincial house-building fund was responsible for 1,500 houses with a capital of approximately £1,500,000. Public money has, in effect, multiplied by these means, and at a time when the formation of capital and the accumulation of real savings for any other economic projects was next to impossible.

But post-war building in Vorarlberg has not been purely a restoration affair. All the towns of the province have their plans, based on the best possible use of limited resources. That for Dornbirn, for example, was among the first. Near the Rhine and Lake Constance, it is the largest Vorarlberg town, with a population of 22,000 and the province's industrial centre.

It has been described as an industrial garden city, whose industrialisation was gradual, and a healthy balance has been preserved between agriculture and industry as the occupations of its inhabitants. The plan assures its future as a garden city, with the equally important development of its role as a centre of commerce, and allowance has been made for the expected expansion.



Sports Pavilion at an Alpine Stadium in Lower Austria.

BRIDGE BUILDING

In the land fighting during 1945, Vorarlberg's communications were hard hit. The loss of bridges was especially heavy. In the case of 20 destroyed bridges only a beginning of restoration has been made. Temporary bridges have had to replace two important crossings of the river Ill near Feldkirch, and the River Bregenzerache at Lauterach. Eight provincial and national bridges have been repaired.

About a third of Vorarlberg's expenditure went on road and bridge construction. One of the most important achievements was the reopening of the highway from Bregenz into Switzerland through the completion of the new bridge over the Bregenzerache near Hard, in 1952. In the summer of this year, linking sections of main roads in the east of the province will be ready. Many new rope-lifts and mountain funiculars, essential means of transport hereabouts, have been built.

In the eastern province of Styria, the communications problem was similar. One of the most vital tasks was the improvement of streets and the reduction in the number of dust-surface roads. These constituted about 94 per cent. of the roads in 1945, but have been decreased to 83 per cent. About 200 more road-miles have been improved and widened. Road bridges suffered too, in common with those of other provinces, and their repair became a matter of priority in Styria's general economic recovery. At the end of last year 70 out of the 128 damaged had been replaced.

Styria has a population of over 1,100,000. Until 1943, the province was regarded as a "safe area" from air attacks. But after the raids on Vienna, Innsbruck and Klagenfurt, the first attack took place on the provincial capital of Graz in February, 1944. Graz, with a quarter of a million inhabitants, is the most populated city of Austria, after Vienna.

The town's main station and some industrial establishments in the north of Graz sustained heavy damage. In the last weeks of the war, the eastern part of Styria especially became a battlefield and numerous small towns suffered in the process. Of all the damaged buildings in the various districts of the province, nearly one half were a total loss. In the city of Graz alone, 2,300 houses (8,900 dwellings) were made uninhabitable. In some parts of Styria much damage was sustained, too, by historic monuments and buildings such as churches, castles, old houses and streets. War damage, rated at to-day's values, amounted to over £400 per head of the local population, in many

Children's Alpine Sanatorium in Styria.

Administrative building section at Waidhofen Ybbs.

places. The total cost of restoration for the province has been estimated at £50m.

SHORTAGE OF MATERIALS

The first efforts at reconstruction were of necessity primitive personal attempts, aided as far as possible by local technical departments. There was an acute shortage of building materials and whatever existed had to be rigorously allocated. A building board was set up to which all reconstruction projects had to be referred.

A further problem was the drawing up of an overall plan for the province, so that builders might look further ahead than immediate need alone. On the basis of a provincial order all important projects were subjected to examination. By the direction of building materials, it was possible for the central authority to influence building form in a way which was considered to the best advantage of the industry.

In this context, the Styrian building manual was issued in 1948, and through it a guide was given to everyone participating in the reconstruction. It was feared that tasteless and ugly creations would be erected in the ensuing building drive, so its intention was to provide a standard of design, without the need for employing compulsory measures. Nevertheless, the manual was not received without a good deal of criticism. The main fault is that it encouraged a tendency to design and erect modern buildings in the traditional form.

The end of 1948 saw a third of all war damage already repaired, and to-day the achievement stands at about 90 per cent. Hand in hand with this has gone a large measure of new building. By the end of 1948, the war-damage repair programme equalled that for reconstruction. A great proportion of new buildings have been for social and economic welfare projects. Among other important undertakings have been the reconstruction of damaged reservoirs and water-supply buildings and repair of river embankments and canal networks, largely financed from ERP funds.

This necessarily brief survey of the post-war problems and achievements in two Austrian provinces shows a situation not greatly different from that in other parts such as Tirol, Salzburg province, Carinthia or Burgenland. But I do not want to give the impression that building and reconstruction in Austria is simply a provincial matter. To begin with, many projects sited in the provinces are of national concern—railways, main highways, Customs' offices at Austria's borders, historic monuments, colleges and technical schools, power projects, even the condition of holiday resorts for the nation's important tourist industry. Many of these schemes would be financially beyond the means of individual provinces.

PLANNING PRINCIPLES

A number of general planning principles were suggested as early as 1949 at a conference of regional building directors at Linz. The urgent necessity was expressed for the passing of legal measures to facilitate planning and building activity. Provision for the public acquisition of land for building, the need for a higher planning authority than the purely local districts with their insufficient or non-existent technical staffs, the preservation of the rural and urban landscape, were matters all agreed upon and a measure of progress has since been made towards these ends.

It was soon recognised that a central planning organisation was imperative to co-ordinate the several regional programmes, and to provide for the solution of planning problems which, by their nature, could not be dealt with solely by the region or province. An advisory department was felt to be an essential part of such an organisation. This ensures that technical information, propaganda concerning architectural style through manuals besides archives of plans and photographs are generally available, with lectures and courses on building and planning. In this way, Austria in general hopes to earn as high a reputation for building as did pre-war Vienna.

Architectural Association

MR. VINCENT KELLY CONDUCTS MEMBERS "BY THE LIFFEY SIDE"

A MEETING of the Architectural Association was held at 36, Bedford-square, WC1, on Wednesday evening, November 25. Sir Hugh Casson, FRIBA, president of the Association, was in the chair, and Mr. Frederick Henry Voland (Irish Ambassador to the Court of St. James) was among those present, and took part in the discussion of the lecture, the delivery of which formed the main part of the evening's proceedings. This lecture was entitled "By the Liffey Side—Georgian Dublin." Before its delivery there was some preliminary business which included the presentation and adoption of the Association's accounts for the year.

THE PRESIDENT then introduced the lecturer, MR. VINCENT KELLY, saying that Mr. Kelly was not only a Fellow of the Royal Insitute of British Architects but also past-president of the two Associations of Architects in Ireland. He was also the first holder of the degree of Bachelor of Architecture granted by Dublin University.

MR. VINCENT KELLY said that there had been two golden ages of architecture in Ireland, the Irish Romanesque of the ninth and twelfth centuries and the Renaissance, running through the late seventeenth, the eighteenth and the early nineteenth centuries. Irish architecture had never attained the splendour of the Gothic period in England and France, and as to the Elizabethan-Jacobean period it was almost entirely absent.

In 1662 James Butler, Duke of Ormonde, had returned to Dublin after exile in France, resuming his office of Viceroy and bringing with him memories of the Paris of Louis XIV. His mind was filled with the conception of the centralised state and a ceremonial capital. At that time the area of Dublin was one-ninth of a square mile, and its population nine thousand; but in the next half-century the population increased six times with corresponding building development. This development was mainly residential, but from Ormonde's vision there had stemmed other schemes of development carried out at a later time. The creation of Phœnix Park and Saint Stephen's Green were due to him, and it was he who had insisted on the provision in connection with the new Essex bridge of a stone quay wall, which had become the prototype of the whole system of Dublin quays in their final beauty. He also was responsible for the erection of the first great building of the Renaissance period in Dublin: this was the Royal Hospital for Old Soldiers at Kilmainham. It still existed.

MEN OF GENIUS

In this second golden age of architecture in Ireland seven or eight architects had shared between them the principal works of the period, the most notable being John Ivory (1720-1786), James Gandon (1743-1823) and Francis Johnston (1780-1829). These men, particularly Gandon and Johnston, had been men of genius whose works compared favourably with those of their generation in any country of the world. Georgian Dublin had measured about three miles by two: in this small compass one might view what remained of those halcyon days when the city was growing rapidly and had a brilliant social life.

Calling attention to copies of a map of Dublin which had been distributed among

Vincent Kelly (centre) with friends at his country cottage.

the audience, the lecturer said that it showed the River Liffey dividing the city into two parts, and in the right centre of the map it would be seen that the river was crossed by the O'Connell bridge. Here was the main thoroughfare of Dublin, north and south, the bridge being the centrepiece of urban, civic and commercial life. To its north was O'Connell-street, one of the widest streets in Europe. On the south was Westmoreland-street, leading to College Green, onto which faced the front of Trinity College and the Bank of Ireland. Formerly this building had been the Houses of Parliament. This main thoroughfare led north and south to two great roads encircling the city; these were the north and south circular roads.

Illustrating his subsequent remarks with the magic lantern, the lecturer took his audience on a tour of Dublin. Of the quays, he said that Dublin's export trade in the seventeenth century had been large enough to turn people's thoughts eastwards to large areas of useless tidal swamp bordering the banks of the river, and from this urge there had arisen a notable public work shaping the city's destinies by a vast scheme of reclamation, the outcome of which had been the quays on both sides of the river. The quay on the north was the main centre of shipping activity.

THE CUSTOM HOUSE

From Rogerson's Quay, on the south side, there was obtained a view of Gandon's notable conception, the Custom House. Gandon had been an apprentice of Sir William Chambers, coming to Ireland at the age of 38 to design the building. He found its site a reclaimed swamp and decided not to use piling. Instead he pumped out the space in a coffer dam, levelled it off, laid down a quantity of cut heather, and on top of that a raft of foot-square timbers. The interstices were filled in with bricks laid in mortar, four-inch planking and granite courses with iron chains embedded. Granite courses brought the work up to ground level. Time had proved the soundness of this construction.

Of the present Bank of Ireland, the lecturer said it was the first public building of importance, and was built to house the new Parliament in College Green. Begun in 1728 from the designs of Sir Edward Lovett Pearce, additions had been made to it at various times. Gandon had added the House of Lords entrance on the east side in 1785 with a fine hexastyle Corinthian portico. He had connected the House of Lords entrance with Pearce's south colonnade by a curved wall containing seven niches but having no ordinance or balustrade. His object was to mask the various compartments within without detracting from Pearce's front or his own portico. The Bank of Ireland had acquired the building after the passing of the Act of Union in 1800 and Francis Johnston had then remodelled it to suit the bank.

Showing a slide of Trinity College, the lecturer said this was one of the two Dublin Universities, and had been founded in 1591 by Queen Elizabeth I. It had a site of 35 acres in the heart of the city and comprised many important buildings of various dates; but none of the original structure now remained. The façade facing west towards College Green had been designed by Keene and Saunders, of London, in 1759, and was notable for its fine fenestration and corner pavilions. These were worthy of Gandon himself.

A few minutes' walk from Trinity College was Merrion-square, laid out by Ensor in 1772. Most of the houses on three sides of the square had been completed by the end of the eighteenth century. The west side was occupied by a fine lawn in front of Leinster House, now used as the Dail or Parliament. This was flanked by a museum and an Art Gallery. There was dignity and charm in the houses in Merrion-square. Externally the doors, fanlights and balconies, and internally the stuccos, cornices and ceilings were endlessly varied and interesting. One of the chief reasons for the success of Dublin's eighteenth-century street architecture was the fact that largely it was not designed on drawing-boards; but was designed by masons, bricklayers and carpenters with a solid background of technical knowledge. This accounted for an impression of genuineness often absent from London work of the same period. Off Merrion-square was Upper Mount-street, at the end of which was Saint Stephen's Church, built in 1820. This was the last classic church of the Establishment. It was built on an island site with a magnificent vista along Merrion-square and Upper Mount-street. Students of classic architecture would admire the delicacy and scholarship of the composition.

Of one building, originally the Royal Exchange, designed in 1776 by Thomas Cooley, the lecturer said this was the result of a public competition open to Irish and English architects. Sixty-one designs were submitted, of which 24 were Irish. Gandon was placed second. The site and detail of the bridge were excellent, but the design was rather cold and unfriendly. The stone balustrade steps on the north front had been added when the building became the City Hall in 1851.

In the list of England's crimes against Ireland there should be included the restoration of Christchurch Cathedral in the 1870s! The money for this had been provided by a whiskey distiller named Roe, while a somewhat smaller sum had been provided for the reinstatement of the neighbouring Saint Patrick's Cathedral by a member of the Guinness family. It was no wonder that the first of these benefactors came to be referred to as the Church's spiritual adviser while the other was called its stout supporter!

In Phœnix Park was the residence of the President of Eire, formerly the Vice-Regal Lodge. It was a mid-eighteenth-century Ranger's house to which Johnston had added wings and a south portico.

On the north side of the quays was John Byrne's church with its classic combination of portico, tower in stages and cupola. It was an important element in the shape of Dublin, well worthy of its riverside situation, and grouping admirably with the Four Courts dome.

Of the Four Courts (1786-1796) the lecturer said that Cooley had designed the public offices on the western portion of this site, and these had been partly built. Gandon altered them, incorporated them in his design and repeated them in the eastern wing. He placed the Courts in a central domed block 140 feet square, under which the great central hall, 64 feet in diameter, was an admirable interior. The undulating movements of the massive central block were gradually stilled as the eye moved out towards the wings, and by the time these were reached visual stability was achieved. It was interesting to observe the two contrasting aspects of Gandon's mind exhibited in the Four Courts and the Custom House. One was masculine and the other feminine. This applied to material, texture and mass; and the same contrast ran in the use of the orders and the design of mouldings.

Mr. Kelly had only one slide of Ivory's masterpiece, the Bluecoat School. This building had replaced a free school belonging to the city. It had numbered among its alumni the great Archbishop James Ussher. In 1662 an Englishman in Dublin had sent his 12-year-old son to that school. The father's name was Sir Winston Churchill, and the boy was the future owner of Blenheim.

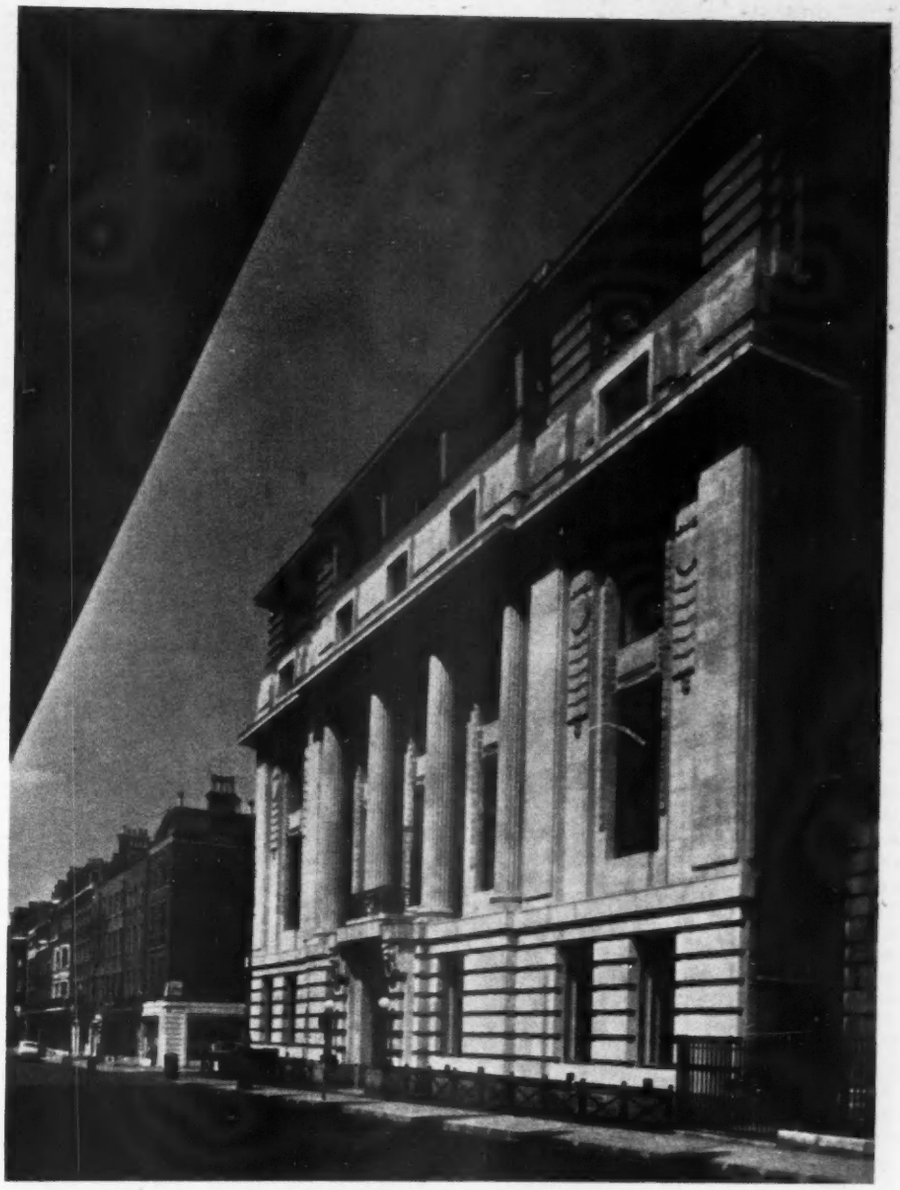
Many more slides were shown and commented on to illustrate the Georgian architecture of Dublin.

DISCUSSION

MR. A. R. F. ANDERSON, FRIBA (immediate past-president of the Architectural Association), who proposed a vote of thanks to Mr. Kelly, said he had lived in Dublin for some years and therefore knew something about the place. The first thing he had been told on arriving there was that the O'Connell bridge was as broad as it was long—it was, in fact, square on plan. There was a zoo in Dublin and the best people were invited to have breakfast at the zoo. This struck him as an extraordinarily civilised or uncivilised habit—he did not know which. Dublin architecture was most civilised. It was incredible that all these lovely pieces of architecture were contained quite easily within an area two miles by three. They remained very much as they were originally; there were not the appalling gaps that we had in London. As to the brilliant social life spoken of by the lecturer this existed in Dublin 20 years ago and was there still. A Georgian atmosphere of enjoying oneself in good conversation and good company still existed, and to some extent Dublin was a Georgian city in real life as well as in architecture.

MR. ERIC BIRD, ARIBA, who seconded the vote of thanks, said that Dublin had a great attraction for architects. It had a peculiar dreamlike quality. This might be due to the hospitality to which you had to submit if you went there. He had sometimes felt that Dublin was a figment of the imagination, not quite real; almost the kind of city one sees in films.

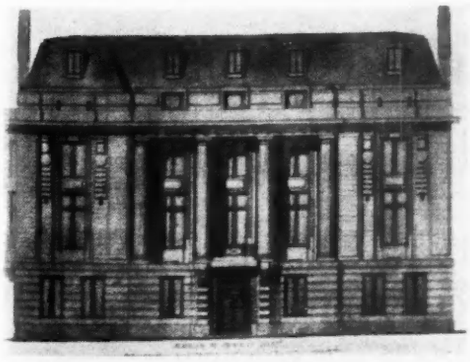
THE IRISH AMBASSADOR said he would not dream of saying a word in the company of architects if he was not a Dublin man; but although he was not an architect he felt qualified to add a word. To him Dublin was sacred ground: it was not only a beautiful city but a living machine.



The Henrietta-street front, showing the new fourth floor. Below is a drawing of the original design for the building exhibited by the late John Belcher, RA, and J. J. Joass, in the RA Exhibition of 1912. Reproduced from "The Builder."

The Extensions to the Royal Society of Medicine, Wimpole Street, W1

Architects : The late J. J. JOASS, FRIBA, & LESSLIE K. WATSON, MBE, MA, FRIBA

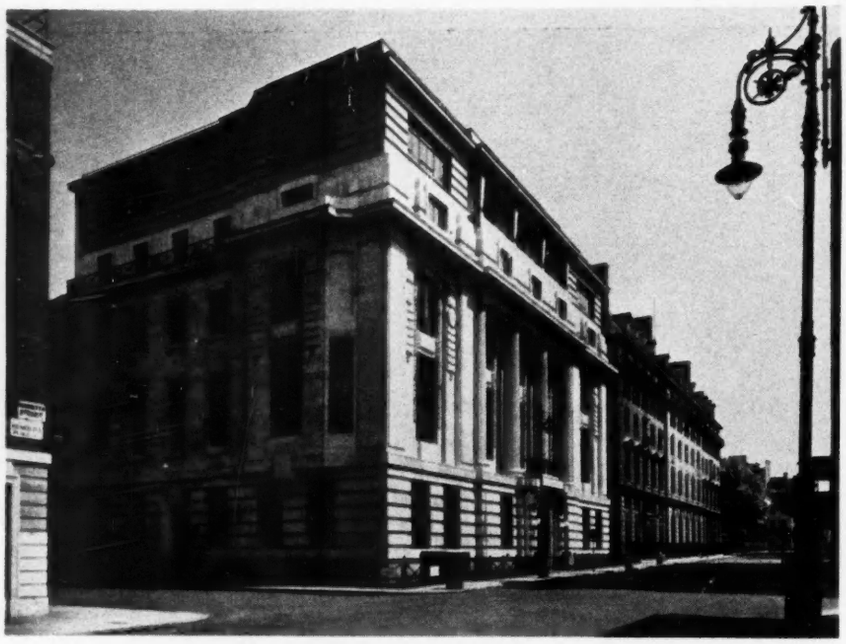


Assistant-in-charge : NEIL THOMPSON, MA, ARIBA

Consulting Engineers : JOHN FARQUHARSON & PARTNERS

Quantity Surveyors : E. R. BABBS & SONS

Builders : TROLLOPE & COLLS, LTD.



View showing return front to Wimpole-st.

THE headquarters of the Royal Society of Medicine at No. 1, Wimpole-street, London, have recently been enlarged. The Society possesses the finest medical library in Europe, which is visited every year by more than 50,000 readers. The main library was on the first floor, and there was more storage in the basement, but by 1950 this accommodation was getting very cramped. The Wellcome Trust then generously made a large sum available for extending the Society's premises. It was decided to gut the second floor in order to make a new Wellcome Research Library, and to add a fourth floor to provide for the space lost on the second.

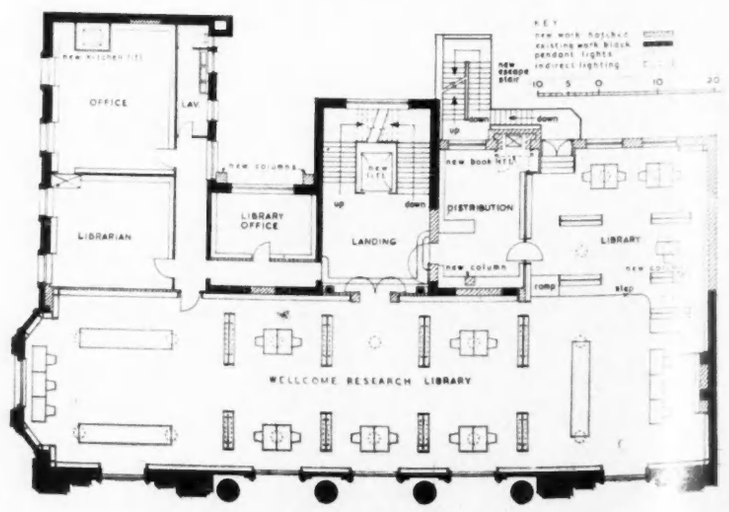
Some 45 years after he did the original design, Mr. Joass once more found himself with a drawing of the Royal Society of Medicine on his board. The consulting engineers reported that four new stanchions would be necessary to carry the weight down to the ground and these would, of course, require new foundations. Pressure piles were used for these. The LCC asked for certain load-bearing walls to be thickened, and their foundations extended. It was necessary to strengthen the whole of the existing roof in order to take the weight of the fourth floor, and the stanchions had also to be connected at third-floor level. Part of the site in the rear was originally built up to the first floor only, and it was decided to add three extra floors over this area. The steelwork contractors threaded it through the old building with great skill. Work, far from easy in any case, was made more difficult by having to keep the building in use all the time. The contract was based on actual costs with an agreed fee to the builders.

In order to reduce the weight on the walls the new fourth floor was clad with aluminium instead of stone. Mr. Joass readily designed in this new material (which has been guaranteed for 50 years) and he was working on the details some three weeks before his death, aged nearly 83 years, in May, 1952. The sheets have been specially treated for appearance.

It was interesting to see how the old building had stood the test of time. The general construction was very sound, and in spite of the extra loads imposed no structural cracks have since appeared. The Portland stonework cleaned up as good as new. The asphalt on the old roof was in excellent repair. Steel windows were an innovation in 1910, and they were not rustproofed. Some minor repairs were necessary to the outer members of the frames, but nearly all were reused on the back elevation.

It was decided to have aluminium alloy shelving in the Wellcome Research Library partly because it was

Elevation to Henrietta-street.



The fourth-floor plan.

View in NE corner of Wellcome Research Library. Right: Another view.

lighter, and would take a finer adjustment, but chiefly because it was cheaper than oak. The ends, top and pot boards of the shelving have been made in oak, lightly waxed. Chairs and tables are of oak; the floor cork.

In 1951, Mr. Lesslie K. Watson became associated with Mr. Joass, and he has been responsible for seeing the work carried out. The work, which has cost approximately £118,000, is to be opened to-day (December 4) by the Marquess of Salisbury, KG, PC.

Firms associated with the work are :

Structural steelwork, Moreland Hayne and Co., Ltd.; piling, Pressure Piling Co.; aluminium cladding and library shelving and ladders, J. Starkie Gardner, Ltd.; structural aluminium sheet and extrusions, ICI Metals; super-purity aluminium for flashings, British Aluminium Co., Ltd.; roof covering, D. Anderson and Co., Ltd.; fire escape, Haywards, Ltd.; wood-block floor, Acme Flooring and Paving Co., Ltd.; cork floor in library, Cork Insulation and Asbestos Co., Ltd.; quarry tiles in kitchen, Camden Tile and Mosaic Co., Ltd.; terrazzo flooring, Lama Floors, Ltd.; pavement and roof lights, J. A. Ring and Co., Ltd.; windows, Crittall Manufacturing Co., Ltd. and Wottons (Croydon), Ltd.; preliminary heating work, Rosser and Russell, Ltd.; ventilating, Fredk. Braby and Co., Ltd.; floor panel heating, William Freer, Ltd.; electrical fittings, Troughton and Young, Ltd.; electrical installation, Charing Cross Electrical Installation Co., Ltd.; lifts, Hammond and Champness, Ltd.; kitchen partitions, Holoplast, Ltd.; kitchen fittings, Benham and Sons, Ltd.; wall glaze, Robb's Cement Enamel Finishes, Ltd.; sanitary fittings, Shanks and Co., Ltd.; ironmongery, Yannedis and Co., Ltd.; fireplaces, Bratt Colbran, Ltd.; venetian blinds, Venetian Vogue, Ltd. and J. Avery and Co.; lightning conductor, J. W. Gray and Son, Ltd.; and oak work in library, Trollope and Colls, Ltd.

The consulting engineers for heating and hot water were Messrs. W. J. Perkins and Partners.

HOUSING DEVELOPMENT AT BRIDGWATER, SOMERSET

Borough Architect
J. D. BLACKLOCK, ARIBA

Builders
STANLEY STONE (CHELSEA), LTD.

THE houses shown above are a variation of the Ministry of Housing and Local Government's "People's House" of 1952. They embody most of the suggestions contained therein, with the addition of some research into other aspects of design in an endeavour to produce a house of satisfying appearance, accommodation and amenity, but being necessarily "streamlined" for economy in building costs and land use. Included in this terrace of four is the 1,000th post-war house erected by the Borough, opened on October 24 by Mr. Aneurin Bevan, MP.

The siting of the blocks *en echelon*, as opposed to "ribbon" development, not only saves on land frontage but, with the considered use of variety in building materials, also presents more interesting elevational effects, thus helping to reduce monotony in repetition of a "standard" house. Materials used are mainly good quality facing bricks, with cast-stone dressings and surrounds to windows and entrance doors and varied Bridgwater tiles to timbered roof. Wall treatment is varied by using concrete blocks in lieu of facing bricks, rendering these in warm light colours, and additional variety is achieved by alternative bright colours to front doors, etc.

Owing to the need for a standard plan capable of speedy repetition and suitable for almost any site and aspect, a "through" living-room has been provided, while the three-bedroomed accommodation was necessitated by the present urgent need for such houses. In the internal planning, every effort has been made to eliminate "waste" or circulation space while maintaining regulation room areas. The large living-room is of a useful shape, and contains a dining area adjacent to the kitchen, being easy for service therefrom. The working-kitchen contains ample cupboard and larder space, with sink, cooker, dresser, etc., planned for easy working.

In the internal store next to the kitchen, which connects to the "back" entrance, a sink with h. and c. water is provided. This may be considered a luxury, but it is maintained that the housewife can do her washing more comfortably and efficiently than by having recourse to an external wash-house which is usually cold and inconvenient. Moreover, when this is the case, the internal wash-house eliminates the need for using the kitchen (with resultant "steaming up" and deterioration of decoration, etc.) as an alternative. The store also contains an internal fuel store and meter cupboard, while still leaving sufficient space for cycle, pram and general storage. An electric wash boiler is provided as an amplifier to the running of hot water to the sink, and for use when the back boiler system is not operated. The dust-bin is housed under cover with plenty of ventilation, and is readily accessible to the refuse collector.

On the first floor the three bedrooms can all accommodate double beds if necessary. The bathroom and separate w.c. have an internal "one-pipe" system soil disposal, thus eliminating the danger of freezing up and the untidy cluster of external waste pi

often seen. The airing cupboard is of a useful size, accessible from the landing, and contains the hot-water circulating cylinder and cold-water feed tank.

Hot water is provided from a back-boiler in the living-room fireplace, all pipes being lagged against heat loss in the circulating system.

In this instance the house is " all electric," power points being provided in all main rooms and store, including provision for the later installation of an immersion heater in the airing cupboard cylinder, if required. A modern electric cooker with cooker control unit is provided in the kitchen.

Construction of the house was commenced in the first week of June of this year, being part of a contract for 58 houses entrusted to Messrs. Stanley Stone (Chelsea), Ltd., of Highbridge, and the Borough Architect writes that it has been due to the ready co-operation of the contractors that the first block of four houses was completed in time for the opening ceremony, while excellent progress has been maintained on the rest of the contract.

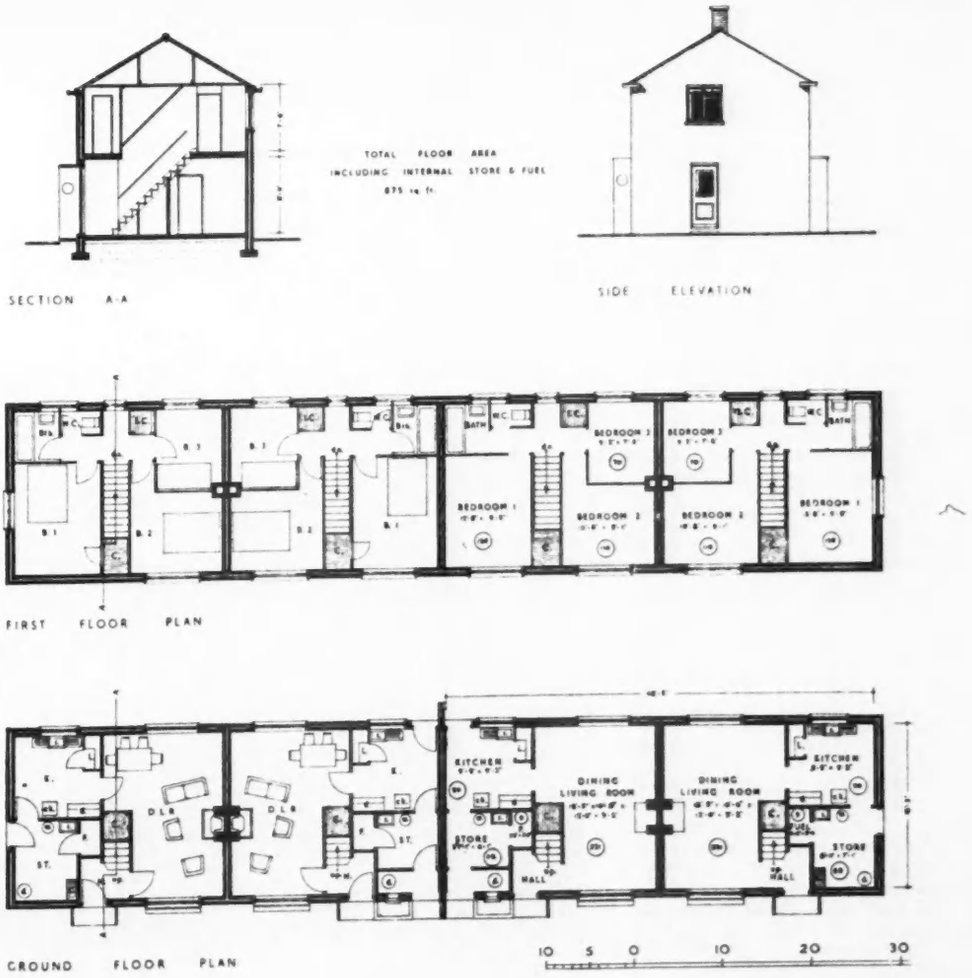
The total floor area of the house, including internal store, is 875 sq. ft., and the average tender price per house is approximately £1,300. While the provisional rent of the house has not yet been definitely fixed, it is expected to be 21s. 6d. per week, inclusive.

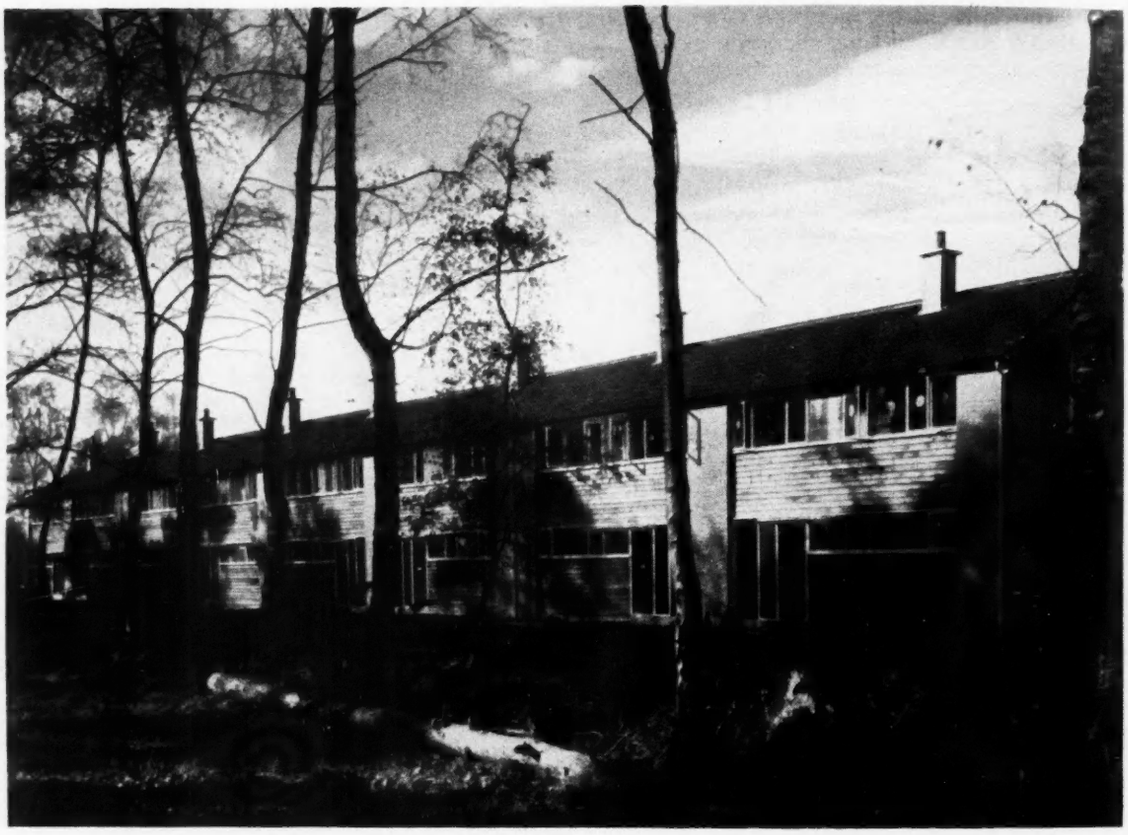
Suppliers of materials, fittings, services, etc., were:

Bricks, Western Counties Brick Co., Ltd., Exeter, London Brick Co., and local suppliers; roofing tiles, John Browne and Co., Ltd., Bridgwater; patent eaves, gutters, Finlock Gutters, Ltd., Tunbridge Wells; rendered wall finishes in " Cementone," Joseph Freeman, Sons, and Co., Ltd.; cast concrete, Teign Valley Conc. Co., Ltd., Trusham, Devon; patent partitions, British Plaster Board Co., Ltd., Wallasey; E. J.M.A. windows and kitchen dressers, Stanley Stone (Chelsea), Ltd.; window boxes and bath panels, etc., G. R. Speaker & Co., Ltd.; water storage tanks, Turners Asbestos Co., Ltd.; doors, F. Hills and Sons, Stockton-on-Tees; bright metal draining boards and indoor ventilators Hartington Engineering Co., Ltd.; fireplaces, W. Butcher and Co., Bristol; sanitary fittings, Slocombe and Hall, Weston-super-Mare; ironmongery and hardware, Wilkinson and Leng, Ltd., Bridgwater; plumbing units, Econa Modern Products, Birmingham; electrical installation, H. Heal, Burnham-on-Sea; patent floors, " Accotile," Rowan and Boden, Bristol; paints, etc., Browns Paints (Bridgwater), Ltd.; electricity (including supply of cookers and wash boilers), South-Western Electricity Board; and fencing, Coates Fencing, Ltd., Bridgwater.

The provision of lawns, shrubs, flowers, etc., in connection with the opening ceremony was the work of the Parks Section of the Borough Engineer's Department.

HOUSING DEVELOPMENT AT BRIDGWATER, SOMERSET





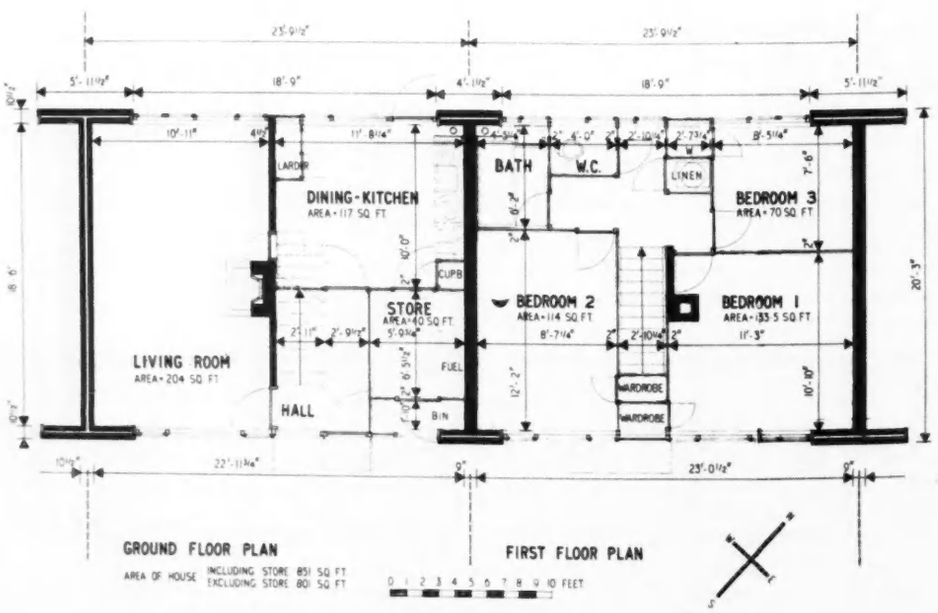
LOW-COST HOUSES AT BAUGHURST, HAMPSHIRE

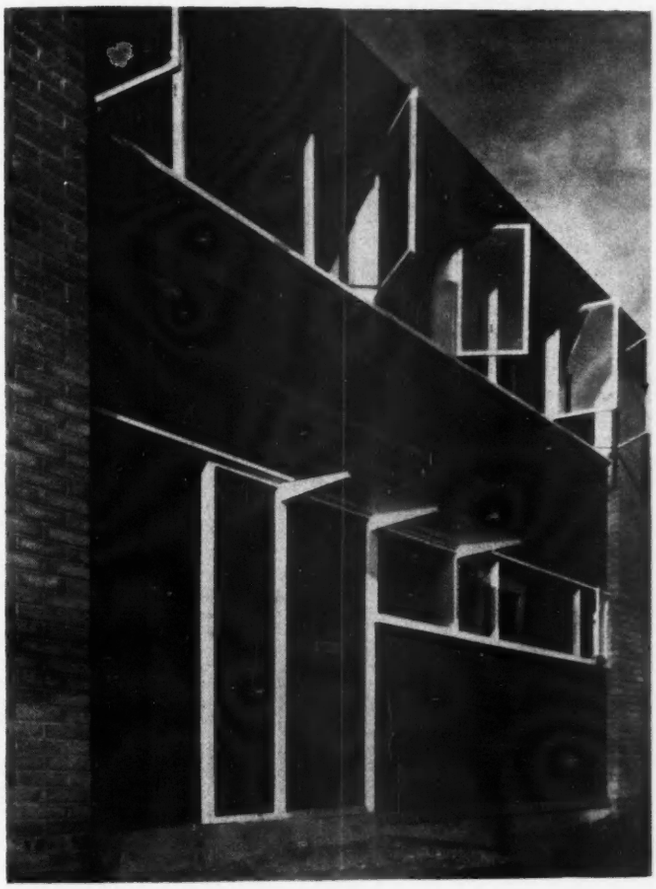
for Kingsclere and Whitchurch RDC

Designer : ERIC CHICK *Consulting Architects : POWELL & MOYA, AA RIBA*

Consulting Quantity Surveyors : DAVIS, BELFIELD & EVEREST

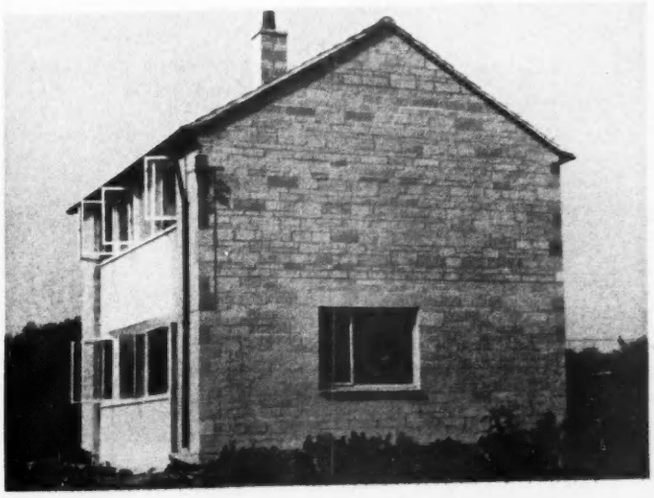
Builders : HOLLAND & HANNEN and CUBITTS, LTD.





Detail of wall treatment showing creosoted weather-boarded apron walls.

View of another scheme using the Highworth process with a different cladding, in this case stone end walls and rendered panels.



THE houses illustrated—a terrace of eight—are known as "Highworth Houses," and have been designed by Highworth Processes, Ltd., complete with full working drawings and bills of quantities. Specialised techniques are not required, and they can be built by a building contractor on the terms of any normal building contract.

In 1951, the prototype pair of Highworth houses was completed at Highworth, near Swindon, Wiltshire (illustrated in *The Builder* of November 23, 1951). Shortly afterwards, on an adjacent site, a terrace of four houses was built to the planning standards of the MOHLG. Twenty similar houses, in terraces of four, have recently been completed at Kingsclere for the Rural council and the eight houses illustrated here have also been built for that council. The contract figure for the eight houses was £9,200 or £1,150 per house, which includes all normal external services and site works.

The houses are designed to use traditional construction in its most simple form where it provides the economic answer, and only to abandon normal accepted traditional methods of construction where non-traditional, or "new traditional," methods save time and money. End walls and party walls and ground-floor intermediate cross walls are built of normal load-bearing blocks and carry all the loads. The ends of the party walls and end walls have returns on them to give them additional stiffness. The first floor is of normal timber joist construction, but all joists are carried on the cross walls. Herring-bone strutting has been replaced by flexible metal reinforcement formed of two strands of galvanised wire twisted together and supplied in coils. The reinforcement forms a series of diagonal braces in tension between the joists and has enabled joist sizes to be reduced by 25 per cent. The roof is of traditional construction with the exception that the weight of the roof is transferred to the party walls by incorporating in the roof structure trussed purlins spanning from wall to wall. These trussed purlins are also used as scaffolding for gables, party walls and chimneys.

Foundations are economic, as they are required only under the cross walls. The external walls are non-load bearing and are, in fact, merely the apron strips situated below the ground-floor and first-floor windows. In these apron walls, specialised prefabricated methods have not been used and the constructional methods allow the flexible use of alternative materials. In the house illustrated they are constructed with woodwool slabs placed in position and held with specially-designed hook nails which are driven into the surrounding frame. Light-gauge reinforcing wire is then passed over the hook nails and across the face of the slab in a continuous length. When the reinforcing is in position, the hook nails are driven further in to tension the reinforcing, which is then stapled at convenient centres to the woodwool slabs. The faces of the woodwool slabs are then plastered in the usual way to form an extremely strong and rigid wall which, in effect, acts as a reinforced concrete beam, but one which requires no shuttering. It is automatically

reinforced against cracking. To give cavity wall construction and a suitable permanent finish for this rural site, creosoted weather boarding has been applied as an external skin to this wall.

Partitions are of reinforced plasterboard, i.e., plasterboard core, wire reinforced, as described for the external walls, and plastered ; they are anchored to the door frames or the structural cross walls and form very rigid walls which, although only 1⅝ in. thick, have about equal sound insulation to that of light-weight block partitions ; they are plastered both sides and increase the effective floor area of the house by about 10 sq. ft. The reinforcement prevents cracking.

When the weights of materials handled during the erection of a normal brick-built council house are added up, the total reaches the figure of about 190 tons. Here, the weight of the materials has been reduced to about 120 tons, a reduction of over 1/3rd. This saving has been reflected in the cost and in the time of erection.

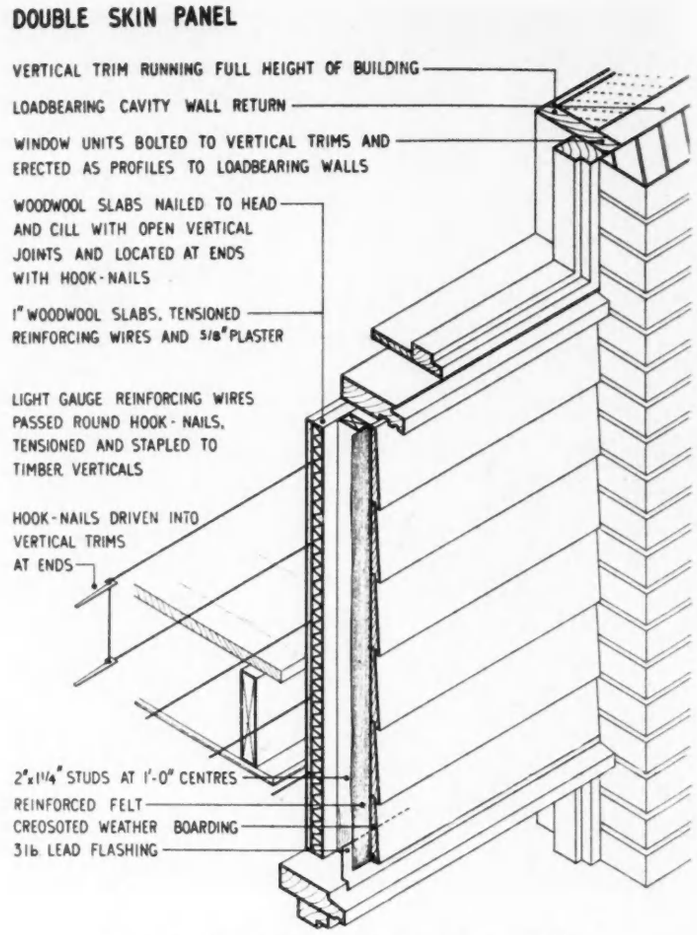
Time of Erection.—A small labour force was employed on these houses. Work was started in late June, 1953, and completed early November, 1953. The recently published report dealing with speed of house-building gives for a traditional, brick-built council house an average figure of 2,705 man-hours with maximum and minimum man-hours 4,645 and 1,565 respectively. In this case, it has been proved that the minimum figure could be reduced by up to 23 per cent.

Method of Erection.—The form of the non-load-bearing walls has been kept as simple as possible by concentrating windows and doors into one large frame with full-length timber jambs and a head formed by the soffit and fascia, with light-weight walls as infilling panels where windows or doors are not required. The frames are assembled on the floor slab by bolting the ground-floor and first-floor window units to the jambs. The complete assemblies, when erected, form jigs for the load-bearing walls and make the structure so precise as to allow carcassing timber, joinery, plumbing, etc., to be precut to detailed drawings with complete confidence. The drawings are, in fact, broken down into two parts which comprise the erection drawings and the manufacturing drawings. The erection drawings are simplified by being produced in book form.

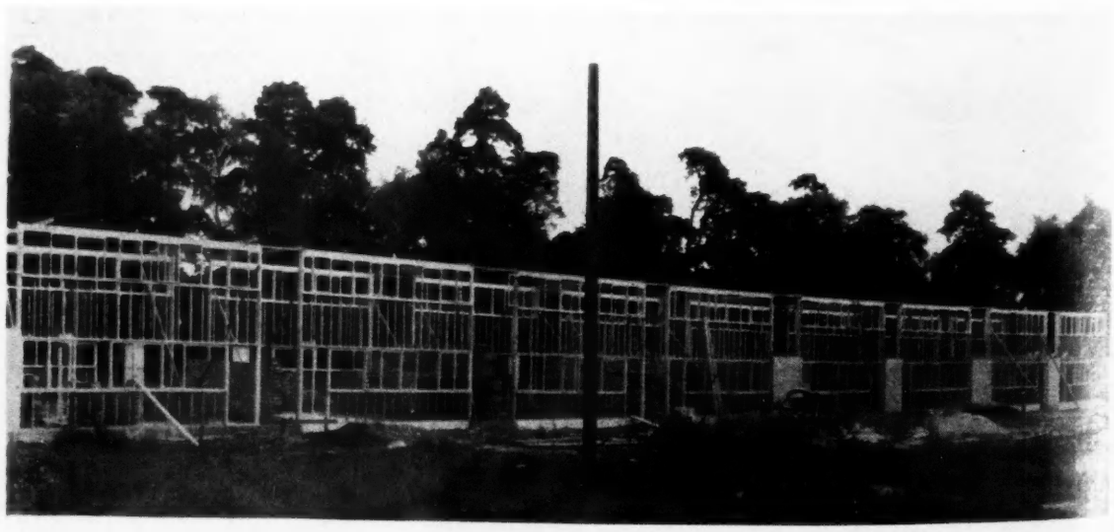
Services.—Internal plumbing. Heating is by an open fire in the living-room, with back boiler supplying hot water to a lagged cylinder. Electric power points (on ring main). Electric cookers and electric wash boilers.

Nominated sub-contractors and suppliers were :—

Facing bricks, The Cotswold Brick and Tile Co., Ltd. ; composition tile flooring, London Flooring Co. ; fabricated carpentry and joinery units, J. Long and Sons (Bath), Ltd. ; doors, W. S. Fry and Sons, Ltd. ; ironmongery, Kennedys (Bournemouth), Ltd. ; sanitary fittings, John Bolding and Sons, Ltd. ; electrical installation, The Newbury Electrical Service ; and coke grates, W. N. Froy and Sons, Ltd.


DOUBLE SKIN PANEL
VERTICAL TRIM RUNNING FULL HEIGHT OF BUILDING
LOADBEARING CAVITY WALL RETURN
WINDOW UNITS BOLTED TO VERTICAL TRIMS AND ERECTED AS PROFILES TO LOADBEARING WALLS
WOODWOOL SLABS NAILED TO HEAD AND CILL WITH OPEN VERTICAL JOINTS AND LOCATED AT ENDS WITH HOOK-NAILS
1" WOODWOOL SLABS, TENSIONED REINFORCING WIRES AND 5/8" PLASTER
LIGHT GAUGE REINFORCING WIRES PASSED ROUND HOOK-NAILS, TENSIONED AND STAPLED TO TIMBER VERTICALS
HOOK-NAILS DRIVEN INTO VERTICAL TRIMS AT ENDS
2"x1¼" STUDS AT 1'-0" CENTRES
REINFORCED FELT
CREOSOTED WEATHER BOARDING
3lb. LEAD FLASHING

Isometric of typical non-bearing wall at first floor.



LOW-COST HOUSES AT BAUGHURST : Progress view of the houses under construction.

REPAIR OF OLDER HOUSES

Mr. Butler Defends Government's Proposals

THE new phase in the housing programme was one of the subjects dealt with by MR. R. A. BUTLER, MP, Chancellor of the Exchequer, in a speech at a Conservative women's rally at Manchester on November 24, when he defended the Government's proposals for the repair and maintenance of older houses.

"This year we shall build the 300,000 houses which was our election target and promise," said Mr. Butler. "So now we have the elbow room to take up again the job of attending to the older houses as well as providing the new ones. Well over half the houses in this country were built before 1914. What we envisage is a far-reaching programme to deal with the old houses according to their need. And millions will benefit from this policy. Owners must be put in a position where they can keep their houses in good repair.

"Our policy of permitted repairs increases, with all its safeguards, is far more sensible, and certainly far less expensive to the community, than the Socialist threat ultimately to nationalise all rented houses. In addition we shall provide more help for modernising old-fashioned but essentially sound houses. And finally the unsound, the condemned, the unfit houses will be progressively demolished and replaced. This will be a long job, particularly in the North."

The Government recognised that people would have to continue living in many of these houses for some years until such time as demolition could take place. They were, therefore, going to give town corporations important new powers to buy such houses cheaply and patch them up sufficiently to make them more tolerable for those who had to live in them. The building of an adequate number of new houses would, of course, continue, and they realised fully how necessary it was to build new houses in the right places.

"We are told that in a year or two Manchester will not have a single building site left inside the city," Mr. Butler continued. "And we hope the Town Development Act we passed last year may help congested cities to solve the problem of finding fresh building sites. A good home is the basis of family life, just as family life is the foundation of a healthy nation. Our policy, therefore, is to aid and strengthen the institution of the family in every way we can."

Labour Party's Views

THE NATIONAL EXECUTIVE COMMITTEE of the Labour Party issued a statement on November 25 expressing its strong opposition to the Government's proposals contained in the Housing Repairs and Rents Bill for dealing with the problems of rent restrictions, repairs and slum clearance.

While these proposals will create the maximum alarm amongst tenants that rents will be raised without adequate legal safeguards, they contain no assurance that sufficient repairs will in fact be carried out, says the statement. Nothing is to be done to remove existing rent anomalies. The private ownership of those dwellings that are still profitable will be perpetuated, but the burden of repairs of the growing unprofitable sector will be increasingly thrust on to public funds. Furthermore, the grants proposed for local authorities to help them undertake slum clearance are quite inadequate.

The statement recalls that in 1920 rents were raised by 40 per cent. but although, it says, prices fell sharply soon afterwards, many essential repairs were not done, and frequently tenants were unable to get certificates of disrepair to withhold the 40 per cent increase.

During the war virtually no private repairs were carried out. The taxpayer, however, bore the cost of repairing and decorating some four million dwellings damaged by enemy air attack. This indirectly helped the private landlords.

To-day on council estates repairs and decoration are carried out regularly.

The statement goes on to say that the National Executive Committee reaffirms the policy laid down in "Challenge to Britain," that eventually all houses within the Rent Restrictions Acts should be owned and managed by the local authorities. It considers that the present Government's policy of urging local authorities to sell new council houses, and at the same time to take over slum and near slum properties at great expense to the ratepayer, is entirely inconsistent and uneconomic.

The proposals for Scotland are held to be even more unjust than those for England and Wales, in that they provide no safeguard for those already paying high rents, and involve alterations to the Scottish rating laws which will react adversely against the tenants.

The National Executive Committee, the statement adds, while fully conscious of the importance of maintaining and improving Britain's existing stock of housing accommodation and of the need for public action to deal with this problem, regards the present Government's plan as entirely unworkable, unrealistic and unacceptable.

Property Owners' Criticisms

THE NATIONAL FEDERATION OF PROPERTY OWNERS have written to the Minister of Housing and Local Government, setting out strong objections to some of the proposals in the Housing Repairs and Rents Bill. The main objection concerns the conditions governing the repairs increase (that the owner shall have spent on repairs at least six times the statutory deduction in a period of three years, or twice the statutory deduction in the 12 months immediately before he applies for the repairs increase).

The letter states that these conditions will make the Bill, if unamended, unworkable and unacceptable to the main body of owners, some of whom have observed the conditions but not within the proposed time limits, and some of whom have no cash resources immediately available. The Federation believe that the Bill will break down.

The Federation's view is that any house that is in good repair should *prima facie* be entitled to the increase, with the following provisos:—(a) That the tenant may apply for a certificate of disrepair, in which case no repairs increase would be payable; and (b) that where the tenant could prove that the landlord has not carried out repairs for which the landlord is responsible, the tenant should be entitled to withhold the increase in whole or in part.

The Federation submit that the repairs increase should be exempt from taxation. They also fear that the proposals governing slum clearance will operate to the advantage of the local authority at the expense of existing owners.

BIRMINGHAM ARCHITECT'S DEPARTMENT

Proposals Before City Council

BIRMINGHAM CITY COUNCIL is being asked to approve the setting up of a new department, the City Architect's Department. Proposals submitted by the general purposes committee state that the total establishment would be 176. Of this number, 153, including 32 clerks of works, comprise the approved establishment of the present Architectural Section of the Public Works Department. It is proposed to transfer eight officers from other sections and make 15 new posts.

Since the establishment of a new department was first brought forward in 1951, the Council has already appointed a City Architect, Mr. A. G. Sheppard Fidler, FRIBA, and a Deputy City Architect, Mr. J. R. Sheridan-Shedden, ARIBA. It is proposed that the new department should be inaugurated on January 1 next, when architectural work will pass from the Public Works Department.

It is proposed that the new department shall undertake the design and layout of all Corporation housing estates, the designing of all Corporation dwellings and the supervision of all contracts during the progress of the work. The department will also be responsible for the exercise of control over all new buildings in Birmingham and all architectural consultative work for council committees, including the recommendation of private architects for specific tasks.

TENDERS FOR HOUSE BUILDING

Few Received by Brighton Corporation

GIVING information to the Brighton Town Council regarding the small number of tenders received for council house building, the housing committee state that they made inquiries with other county boroughs, and development corporations, and learned that most other local authorities found that only a few tenders were being received. The town clerk had reported that it was noticeable that whereas most county boroughs relied on obtaining tenders by public advertisement, this applied only to two out of the 12 development corporations, the remainder dealing with selected contractors on an approved list.

The borough engineer and surveyor reported that he had again approached the Ministry of Housing and Local Government to see whether any of the houses in the 1954 programme could be commenced in 1953, and he had been informed that the programme of 820 permitted for 1953 by the Ministry must be adhered to and no further increase would be permitted.

The housing committee reported to the council that they were limited to a programme of 850-1,000 houses per annum by four factors outside their control, viz: (a) the labour force available, (b) the materials available, (c) the specialised nature of the work and the small margin of profit which made housing contracts unattractive, and (d) the increase in private house building. The committee proposed to consider the possibility of asking other approved contractors to tender.

New Post

Maidstone TC have decided to appoint a Housing Repairs Surveyor at a salary of £750-£785 per annum.

BUILDING HAZARDS

Mr. Peter Trench's Address at the Scottish Industrial Safety Conference

THE main risks that beset the building trade worker, and suggestions for increasing his safety, were outlined by MR. PETER TRENCH, OBE, TD, BSc, in a paper on "Building Hazards" which he gave at the Scottish Industrial Safety Conference, held in Glasgow on November 19, and from which we take the following extracts. Mr. Trench said:—

Quite apart from climate and efficiency, the building industry is a naturally hazardous one. We always seem to be either going down into the ground or shooting up into the sky, and I intend to take you briefly through a building operation where this point will gain in significance. We handle dangerous materials and we handle dangerous machines. Furthermore, it is unusual, except on the smallest job, that one employer or contractor has the complete run of the roost; and, although in law responsibilities are clearly defined, the degree of safety-consciousness prevailing differs widely between the organisations involved. Good examples are not always followed and, in fact, it is my impression that unless a constant drive in this direction is made, the general standard of safety slowly sinks to that of the least safety-minded organisation on the site.

In 1951 (the year covered by the latest Annual Report of the Chief Inspector of Factories), there were some 12,500 reported accidents of which 222 were fatal.

After referring to the legal position, Mr. Trench described the following typical building project, and its attendant risks to those working on it. He continued:

SITE CLEARANCE

Let us start with site clearance which, in built-up areas, generally involves demolition. This is merely the process of knocking the site into shape for the building operation proper. Demolition is very hazardous work in any but skilled and competent hands, calling not only for expert technical knowledge, but a capacity to assess risks, both to workmen and the general public. The Factory Department in their Building Regulations have gone to the trouble of setting down all the most important points to be considered in planning a demolition job and, in particular, I would draw your attention to paragraph 79 of these regulations. First and foremost the work must be "*specifically* placed under the supervision of a competent person experienced in demolition operations, and appointed for the purpose, whose name shall be posted up in a prominent position on the site of the operations. . . . " This clause goes on to ensure that there shall be no ambiguity as to who is responsible in the event of more than one contractor taking part in the operation.

Falls of persons and falling objects are, of course, the most serious accidents connected with demolition work and it requires very little imagination or knowledge of the industry to appreciate this. Do not go away with the idea that demolition is an unskilled job—it is, in fact, highly scientific. The greater the hazard, the greater the skill required, and it says much for the technique of this branch of the industry that its accident rate is as low as it is. Special mention should also be made of the use of explosives, a modern technique calling for special requirements to ensure the safety of operations.

GROUND WORK

Having cleared the site, we now start on the ground work, and it is quite surprising how far down one often goes before going up—in fact, it is not wholly untrue to say that the higher the building, the further one has to dig into the ground first. To-day, of course, any major excavation is carried out by machine but, like modern atomic warfare, it is the foot slogger who still must ultimately be concerned with the mopping up. Men must go down into the excavation to level off, lay drains, etc., and mother earth can be very treacherous if not treated with respect. I find that there is a great temptation in the industry to underrate the danger to men working in the ground, especially when excavations are not particularly deep. The urge for speed and the sometimes very appreciable cost of timbering sufficiently to provide a safe working place can sometimes influence the man in charge to persuade himself that a trench is safe enough for the comparatively short time that the men will be working in it. This tendency, though sometimes having fatal results, is a very natural one.

Even where ample timbering is provided men often fail to keep within the protection of that timber and, as the Chief Inspector mentioned in his latest report, there appears to be a prejudice against the comparatively slow but safe method of timbering which ensures that no one enters a trench until there is sufficient timber in position. Here soil conditions must be taken into account.

Management can help here by ensuring that excavation work is in the hands of experienced men, competent enough to estimate the risk and cautious enough to ensure that no chances are taken. It is surprising how small a lump of consolidated earth weights 1 cwt., and what a deadly effect it can have falling from a few feet above a man's head.

We cannot leave this matter of excavation without mention of two other hazards; the hazard of men falling into the hole and the hazard of stacking heavy loads too near to the edge of the excavation. Both these hazards are catered for in the regulations which provide for fencing and for stacking at a safe distance but, in the latter case, some elementary knowledge of the angle of repose of soil is required.

STEEL ERECTION

Having excavated and prepared the foundations and bases, the steel erectors descend upon the job and, with incredible speed, the steelwork soars into the sky. It is a never-ending source of amazement to me to see these brave men swarming along girders intrepidly but precariously perched on slippery joists, tossing bolts to each other as if they were playing "broken bottles" in the garden. The fact that their courage sometimes stretches to breaking point the elastic especially threaded into the Building Regulations for their benefit is proved by many cases at Common Law where claims by employees, or their widows, have been decided in favour of the claimant on the grounds that it *was* practicable to give safer working conditions. The most recurring accident in this type of operation is, of course, "falls of persons."

With the steelwork going up the builder follows closely behind with his cladding. Speed here is the ruling factor, for every builder wants to get the building watertight, from which moment he can to a certain extent defy the elements. Speed, however, brings danger in its wake.

The job is now in full swing, and a brief look round the site shows that the builder's plant and equipment is now in use; loose materials are heaped at strategic points, while stacks of bricks and other prefabricated items add to the general chaos. It is now or never that the orderliness so necessary for efficiency and safety will be found. It is now or never that the man in charge can instill into his labour force that necessity for tidiness which will save so many minor accidents. There is not the same tendency to drop things about anywhere when there is obviously a proper place for them.

We have also got to the point where we need ladders, scaffolding and lifting appliances—possibly cranes, probably hoists. Safety here begins at the plant depot and, by ensuring that at least that plant is dispatched to the job in sound condition, avoidable hazards can be taken care of. There is little time on a busy job for careful scrutiny of each ladder and scaffold board as it arrives.

THE SCAFFOLDER

A word here about the scaffolder himself. The erection of scaffolding appears to be taken very much for granted in our industry and rarely does one hear of special training being given in this trade on which others depend so much for their safety. This has obvious dangers, and any builder should think twice before taking on for work on his own an untried man who claims to be a scaffolder.

Specific "do's and don'ts" are included in the regulations regarding ladders, scaffolding and lifting appliances, all intended to provide, so far as is practicable, safe working places and to protect those below from falling materials, etc. Once again our chief hazards are those concerned with falling persons and falling objects, but others now come into the picture. I refer to the danger of cement dust and eye and head injuries from cutting away brickwork, etc., and from protruding scaffolds. The presence of machines, both static and prime movers, introduces hazards which we share in the main with other industries, but with one notable variation. In industry generally the man behind the machine is familiar with it and knows its tricks; in building, the man who looks after the concrete mixer or hoist at A may not be the same man who uses it at B, and the man who drives it on Monday may not be the same man who drives it on Saturday. Here we see the true significance of employing casual labour. Quoting again from the Chief Factory Inspector's report, lifting gear and appliances accounted for 320 accidents; other machinery accounted for 444 accidents.

Reverting to our building project, we should find that notices prohibiting the carriage of persons and warning persons approaching are prominently displayed on the hoists. Hoist-ways are deadly traps unless adequately protected and in 1951 87 persons were injured and 3 killed by accidents on hoists. Timber shuttering is now being struck and here we have a menace insufficiently recognised on most building sites. Literally tens of thousands of men

receive injuries each year from nails projecting from timber.

Ladders call for special mention. The latest figures show that in one year ladders were involved in 739 accidents including 22 fatalities. In his last report the Chief Inspector af Factories spoke of the ladder as the greatest single cause of persons falling. What can be done to remove the danger or reduce it to a point where it is no longer such a major factor in causing serious accidents? Firstly, we must realise that in the main it is not the ladder itself which is responsible, but the failure to comply with the regulations, namely, to ensure in the first place that it has a firm and level footing and is fixed as far as is practicable to prevent movement at top and bottom and, in the second, that the ladder is of adequate length for the job. The construction of special stairs with scaffold and stair couplings is practicable on certain jobs and the construction and use of the permanent stairway in the building itself at the earliest opportunity is always to be recommended.

There is little which is not obvious to say about roofing. In 1951 falls of persons from sloping roofs caused 171 accidents of which 11 were fatal. Things are not made easier in Scotland for the roofer and tiler for, unlike the south, much of the outside cladding has been done by overhand methods which avoid the use of external scaffolding and when it comes to roof work (I am referring to a pitch roof), the roofer must fend for himself. A number of variations of scaffold brackets designed to support a platform with guard rails and toe boards at eaves level have been introduced, but the particular design of the roof, strength of supports, etc., do not always make these practicable.

You will notice that I have constantly referred to falls. May I quote a few figures. In 1951 (the latest year of official figures), 72 per cent. of the total of fatal accidents in the building industry were due to persons falling from heights exceeding 6 ft. 6 in. Personal falls accounted for 3,937 accidents and a further 1,165 accidents were caused by falls of materials. Together these represent 43 per cent. of all accidents reported.

FIRST AND SECOND FIXINGS

These operations concern the carpenter and joiner and perhaps it is convenient here to make mention of wood-cutting machinery, although, of course, this may well be in operation throughout the job. The circular saw in particular can be the cause of very serious accidents and our experience shows that these are not confined to the man with little experience. Unless the old soldier is meticulously careful to ensure that his machine is always guarded, it will "get" him eventually.

One frequent cause of trouble is attempting to use the saw for timber of a scantling too large for the saw as set up. This results only too often in the guard being removed and the use of a bench quite inadequate for its purpose. We take the precaution on many of our jobs of fixing a cover which enables the sawyer to lock up the saw when he is not using it.

Painting, plastering, glazing and plumbing all have their peculiar hazards, but I have not the time to deal with them in detail. I would, however, like to mention dermatitis and lead poisoning. Dermatitis is often difficult to detect until it has got to a point where prolonged avoidance of a particular type of work is essential. Insistence on operatives using gloves and other protective clothing in certain specialist work can help.

A brief mention here of electrical hazards. Outdoor work in wet surroundings and in conditions where cabling and wiring are liable to be damaged considerably enhances the risk of electric shocks. Leads trail through puddles and over reinforcement and damage is almost inevitable. There is also a very real danger from contact with overhead lines by crane jibs, metal ladders, metal roof trusses and tubular scaffolding. Similarly below ground live cables can bring death or disfigurement to the labourer with pick or shovel or to the digger operator.

CONCLUSION

The building industry is a great industry. its hazards are legion and its responsibility great; like a sleepy giant, it is slowly waking to the fact that it has moral as well as legal obligations to men who spend a lifetime fighting the elements in a naturally hazardous occupation. Those men themselves, together with management, must pull their weight in minimising risk. We must not wait for the factory inspector's threat to have recourse to legal proceedings on a wider scale to materialise, we must accept our responsibility, great as it is, and achieve in the realms of safety that position of respect which is due to such a great and honourable industry. This calls for further efforts from everyone from the managing director to the tea boy.

ACCIDENT PREVENTION

London Group's Meeting

EIGHTY representatives of contractors and of other firms were present at the sixth ordinary meeting of the London Building and Engineering Contractors' Accident Prevention Group, held on October 28.

An interesting and practical paper was given by MR. H. E. HODGSON, plant manager of Messrs. John Laing and Co., Ltd. The paper was concerned with building plant and the part that the plant department can play in accident prevention.

Mr. Hodgson laid particular stress on the following points:—

(1) Top level management must realise the need for an efficient safety organisation.

(2) The importance of safety must be stressed in discussions with supervision when planning jobs, etc., and they must be held responsible for ensuring that the regulations are observed.

(3) The value of self-preservation must be brought home to the men themselves, and this can be done by making them realise the suffering and hardship to themselves and their dependants if they are involved in an accident.

(4) This realisation can also help to make them more conscious of the safety of their fellow workmen and inspire more thoughtfulness in taking steps to avoid involving others in accidents.

MR. E. L. JONES, London Regional Secretary, NFBTO, was present with several of his colleagues from trade unions concerned with the building industry. In complimenting the group on the progress it was making, he expressed the hope that it would be reflected in greater safety on the sites. Mr. Jones said, he realised the help that could be given through the trade union organisation, and he assured the meeting that he, and his colleagues, would do whatever lay in their power to emphasise to their members the importance of accident prevention.

UNLICENSED WORK

Surgeon and Builder Each Fined £250

ALEXANDER MICHAEL BOYD, a professor of surgery, of Platt-lane, Rusholme, Manchester, was at Manchester Assizes, on November 27, fined £250, or three months' imprisonment, after pleading guilty to contraventions of the building regulations by directing unlicensed work at his home at a cost of more than £5,000.

James Kilday, builder, of Clovelly-road, Chorlton-cum-Hardy, Manchester, who appeared with Professor Boyd, was also fined £250, or three months, after pleading guilty to charges of carrying out the work, in contravention of the regulations.

Mr. Granville Slack, for the Director of Public Prosecutions, said the case concerned work carried out at the professor's home in Platt-lane, Manchester, between April, 1951, and October, 1952. The total cost of the work, which was subject to licences, was £5,171. No licences at all were obtained for the work.

Mr. Slack said the work—"a serious breach of the regulations"—consisted of reconstruction of the cellars and kitchen, two new bathrooms, the installation of nine new fireplaces, new electrical wiring, and extensive decorations both interior and exterior.

Mr. Slack said a great deal of the work carried out was done in the servants' quarters and was not carried out in the part of the house occupied by the professor. He added that there was a dispute between the two men as to who was to blame.

Professor Boyd said in evidence that when he asked Kilday whether such work required licences, Kilday replied, "Oh, you have a lot of worry in your job. Don't worry, I will do it for you."

The professor said he was extremely concerned when he heard about the position which had arisen. He went to the Ministry of Works and placed the whole matter before them. Practically the whole of the work, he said, had been done on the quarters occupied by the housekeeper and family.

Kilday said in evidence that on one occasion when he mentioned the licences to the professor, the professor replied, "Oh, to hell with the licences."

On another occasion after becoming suspicious that there were no licences, he withdrew men working at the house.

Mr. Phillip Curtis (for Professor Boyd) said: "This is not the case of a man wanting to build a magnificent palace when other people are urgently wanting homes."

Mr. J. D. Cantley, for Kilday, said there was conflict in the evidence, but Kilday had understood that the professor had got a building licence for the work.

Mr. Justice Donovan said both men had failed to fulfil their obligations under the regulations. They could quite simply, by a telephone inquiry to the Ministry concerned, have found out whether there was a licence, but neither of them had done so.

He was satisfied that the money was not spent on luxury accommodation, but spent on accommodation for a family.

Both men were given one week to pay the fines.

Summer Meeting

The Summer Meeting for 1954 of the Institution of Heating and Ventilating Engineers, 75, Eaton-place, SW1, will be held in Bournemouth from July 3 to 7.

PROPOSED EXPANSION OF SWINDON

First Inquiry Under Town Development Act

[From a Correspondent]

FROM evidence put before Mr. R. A. Hudson, an inspector from the Ministry of Housing and Local Government, at an inquiry held in Swindon on November 17 and 18, the Minister will in the course of the next two or three months decide whether a large number of Londoners are to be encouraged to settle in a town of at present 70,000 inhabitants 80 miles from the capital. The inquiry was the first in the country to be held under the Town Development Act, 1952.

In February last the Minister approved in principle that Swindon should be expanded for the reception of population and industry from Greater London. Earlier in the month of the inquiry Swindon Town Council accepted the offer of a Ministry grant of £264,000 to meet half of what the Corporation expects to spend in the first five years of its expansion programme; the grant being, of course, conditional upon the Minister's approval of the scheme to acquire enough land to carry out the expansion.

Last July, Swindon Corporation made a compulsory purchase order upon 254 acres of farmland in the Walcot area, and objections to this order from the farmers and their representatives were heard at the inquiry.

Debate took two lines. Some objections were concerned with local matters, such as the provision of adequate sewerage and the agricultural quality of the land in question. Others were concerned with the problem as it affected wider national issues.

In opening his case for Swindon Corporation, Mr. J. Ramsay Willis stated that Swindon itself had 1,000 labour vacancies for early arrivals, and that there were a further 2,500 at Vickers-Armstrong's works just outside the town. He said there was also land available for new industries.

Giving evidence for the Corporation, the Town Clerk, Mr. D. Murray John, said that nine London local authorities had expressed willingness to negotiate agreements to export population to Swindon. The Borough Treasurer, Mr. E. Eckersley, stated in cross-examination that without the Government grant he would not advise his Corporation to proceed with the plan.

Relative Costs

The chairman of the executive committee of the Town and Country Planning Association, Mr. F. J. Osborn, gave evidence about the balance of agricultural and urban land on a national scale. He said that, apart from the recreational value of domestic gardens, the retail value of their produce had been estimated to be worth 2s. 2d. a week on the average. Assuming that 12 houses were built to an acre this gave annual produce worth £67 10s. per acre per annum —a figure which only very good agricultural land could better. If five million people, he said, were dispersed from congested areas at 14 to the acre, they would occupy only 357,000 acres, or about one per cent. of the 45m. acres of agricultural land in Great Britain. It would cost a great deal more, he continued, to increase housing density in large cities than to use this amount of agricultural land. Ten thousand flats with lifts in London would require grants of from £10m. to £13m. more than the same number of houses built in expanded towns.

Further evidence on the agricultural aspect of the problem came from Mr. J. Wyllie, formerly head of the Department of Agricultural Economy at Wye College. Broadly speaking, he said, there was no good reason to believe that the withdrawal of the land necessary for building and other non-agricultural uses need be followed by any reduction at all in the national food supplies. Over the whole field of agriculture there was scope for more efficient methods of production.

Dealing with the actual land under the purchase order—which is mostly used for grazing—Mr. Wyllie said that where land can be used for human food it was in one sense extremely wasteful to use it for growing animal foodstuffs. More than 90 per cent. of the energy value in foodstuffs consumed by livestock in this country was dissipated during the processes of conversion.

Need for Radical Solution

Evidence of the pressing need for a radical solution of London's housing problem was given by Mr. G. E. Palmer, principal assistant in the London County Council housing department. More than 13,000 families on his Council's housing list, he said, were prepared to live in other parts of the country. The number of overcrowded or homeless families amounted to 57,386, while, besides these urgent cases, another 69,521 families were affected by similar factors, and 36,978 more had accommodation not up to modern standards.

The LCC housing committee had approved an agreement with Swindon Borough Council whereby, in return for an LCC payment over a ten-year period of the statutory rate contribution under the Housing Acts, 1936-51, they would have the right to nominate tenants for Swindon council houses, thus implementing to some extent the provision of the London Development Plan, which required 311,000 people to settle outside the capital in the next 20 years.

The Housing Manager for Tottenham Corporation—with which Swindon Borough Council has entered into an agreement—Mr. R. A. Wood, gave impressive figures to show the urgency of Tottenham's needs. Applications for houses have been received on behalf of nearly 25 per cent. of the borough's population. "The attitude in Tottenham generally," he said, "is that the housing situation is so serious that people will go anywhere to get accommodation with a job." Answers to a questionnaire they had sent out revealed that 2,356 families were interested in transferring to new towns. They thought the eventual figure would be about 3,700.

"Tottenham's view," said Mr. Nigel Bridge, who appeared for Tottenham Corporation, "is that all that remains to set on foot a substantial flow of population to Swindon is for the houses to be provided." The main instrument of the move would be the industrial selection scheme, but before that came fully into operation there might be room for direct nomination of people who would move without a job or who had found one for themselves.

Called on behalf of the Goddard Estate, one of the objectors, Mr. H. W. Wells, chairman of Hemel Hempstead Development Corporation and a former vice-chairman of Bracknell Development Corporation, gave evidence of experience of large-scale transfers of population. He stressed the importance of industry moving at the same time as houses were available. London's population would not be reduced, he said, unless industry were moved out of the Metropolis.

It was a matter of very grave concern, he added, that a chosen town should be one easily and economically capable of being expanded. He analysed the distribution of industrial and residential areas in Swindon, and concluded that "Swindon will ultimately regret expansion if the Minister permits it."

It might seem from the evidence called on national matters that a purchase order for land for Londoners' houses ought to be granted. Evidence of local conditions, however, did not go all one way. The Minister is left to decide.

TOWN PLANNING DECISION

Minister Allows Garage on Esher Trunk Road

THE REFUSAL of the Esher UDC, on the recommendation of the Ministry of Transport, to allow Mr. P. Gilmore to build a garage at the side of his house in Portsmouth-road, Esher, on the grounds that access would be from a trunk road, has been overruled by the Minister of Housing and Local Government.

In announcing that Mr. Gilmore's appeal would be allowed, the Minister states that while it is true that the Portsmouth-road carries a very heavy volume of traffic, conditions at this particular point are reasonably good. The road is almost straight, there is good visibility in both directions, and no development on the west side except Sandown Park. The access, says the Minister, can be laid out in such a way as to minimise interference with the free flow of traffic.

HOME OWNERSHIP

"Government and Building Societies Should Co-operate"

MR. HUBERT NEWTON, chairman of the Building Societies' Association, who has been touring America, addressed the Convention of the United States Savings and Loan League in Chicago on November 23.

Mr. Newton said the full deployment of building society resources at this time would mean not only a big increase in home-ownership, but because of the economy in alternative directions it must tend to lighten the burden of taxation that weighed on our industry and trade. To use the building societies fully in this emergency did, however, depend to some extent on intelligent Government co-operation.

Instead of certain extravagances of finance the State was more likely to reach the housing goal by putting its money on the common man and the building society. Such co-operation seemed to be simple horse-sense.

"Our service was never more needed," Mr. Newton declared. "It encourages the growth of that very desirable class of citizen who will use a portion of their income in buying a home, so becoming stable property owners instead of dis-saving by over-consumption of goods and growing gradually more feckless year by year for want of a stake in the nation's security."

Plastics Exhibition

The British Plastics Exhibition, now established as a biennial exhibition, is to be held at Olympia, London, from June 1 to 11, 1955. As in former years, a convention will be held concurrently with the exhibition.

ILO

Memorandum on Guaranteed Wage

THE fourth session of the industrial committee of the International Labour Organisation, held at Geneva from October 26 to November 7, was attended by over 170 delegates and advisers from 24 member States. The United Kingdom delegation included: Mr. Norman Longley (NFBTE) and Mr. R. Kean (FCEC), as employers' delegates, and Messrs. G. W. Grosvenor and I. Ernest Jones (NFBTE) and Messrs. J. Baird, E. C. Beck and P. B. Etheridge (FCEC) as advisers.

The agenda, in addition to consideration of a general report, included the subjects of "Productivity" and "Methods of facilitating the progressive application of the principle of a guaranteed wage."

The plenary session appointed two subcommittees to discuss the latter subjects and, in connection with the information given in the general report, it appointed also a working party to examine the effect which had been given to conclusions arrived at by previous sessions.

TEXT OF MEMORANDUM

The following is the essential text of a memorandum on the guaranteed wage question in the construction industry that was adopted by ILO's industrial committee on November 6:—

1. The attention of employers' and workers' organisations in the construction industry (and, where appropriate, the wage-fixing authorities concerned) may be drawn to the agreed points set out in the following:

Purpose of a Guaranteed Wage Scheme in the Construction Industry

2. It is well known that there is a problem of insecurity of employment and earnings in the construction industry. This insecurity may involve hardship for workers.

3. It would be an advantage to take appropriate measures, in each country where this has not yet been done, to ensure that workers in the construction industry are protected from the consequences of instability of employment.

4. Pending the application of such measures, this objective should be attained in particular by granting to workers for the whole period of the contract of employment an equitable minimum guarantee of earnings for the longest period possible in the circumstances of the country concerned.

5. A guaranteed wage scheme is only one of several methods of providing a solution to this problem. Long-term, cyclical and seasonal factors making for insecurity of employment and earnings must be dealt with by other means such as those which have been adopted in countries where the community has adapted its financial policy with a view to establishing full employment and where well-conceived employment policies have facilitated the carrying on of construction activities throughout the year.

Meaning of a Guaranteed Wage Scheme

6. A guaranteed wage scheme is an arrangement whereby (subject, it may be, to certain limitations and conditions)* employers individually or collectively undertake in advance, or are required by law or regulation, either: (a) to provide for workers in their employment a specified period of work at ordinary rates of pay; or (b) to pay to such workers a minimum sum during this specified period if, the workers being available, neither their customary work nor reasonable alternative work can be provided for the whole of this period.

7. The guarantee should apply only to temporary stoppages of work in hand, which are involuntary on the part of workers and are due to inclement weather, plant breakdowns or circumstances within the control of employers. It is desirable that all reasonable and practicable action should be taken to eliminate or at least reduce the insecurity of workers' earnings arising from such factors. However, the introduction and application of a guaranteed wage scheme in any country must above all take account of the social conditions already existing in that country. Social security provisions should not be duplicated.

Duration of the Guarantee

8. Once a guarantee, which should cover a reasonable period, has begun to operate, a worker's contract of employment should not be terminated before the expiry of the period of the guarantee as prescribed in national regulations or collective agreements.

Some Economic Considerations to be taken into Account in Applying a Guaranteed Wage Scheme in the Construction Industry

9. The cost of a guaranteed wage scheme is of fundamental importance. Its introduction will generally involve some increase in production costs. The size of the increase will depend on the details of the scheme and on a number of other considerations, including the effectiveness of policies at the national level designed to maintain a high and stable level of employment and other provisions in respect of wages and conditions of employment. Within the industry itself, an important economic consideration will be the relative proportion of labour cost to total production cost which varies in different countries and in different branches of the construction industry.

10. Any guaranteed wage scheme will also have to be examined in relation to other provisions for obtaining increased security of incomes which may already exist on a national or industrial scale and which may be financed in part or in whole by the industry and therefore represent an addition to its costs.

11. Any guaranteed wage scheme which may be introduced should be so devised that it does not present obstacles to the mobility of labour within a country.

12. In case of a temporary stoppage, the worker cannot refuse to accept an alternative temporary job at his normal rate of pay, even if it fails to come fully up to his qualifications or speciality or if it involves his transfer to another site.

13. A scheme should ensure that it is always in the worker's interest to continue at his job, or to accept alternative employment, rather than to benefit by the guarantee.

Final Considerations

14. It is noted that the question of introducing a system of guarantee does not arise in countries where the wage level is already high enough to guarantee to construction workers compensation for time lost.

15. It is recommended that the measures envisaged in the above paragraphs should be introduced by means of legislation, official regulations or collective agreements, as is most appropriate in the circumstances of each country.

*If payment is made to compensate for or mitigate the effects of the loss of wages, it should be subject to certain limitations and conditions defined in collective agreements, legislation or orders of wage-fixing authorities.

NATIONAL JOINT COUNCIL

Full List of Constitutional Amendment Notices

[By a Correspondent]

THE full list is now available of the Notices to be considered in January next for constitutional amendments of the constitution and working rules of the National Joint Council for the Building Industry. Each year the parties to the National Joint Council have the opportunity, on or before November 15, to submit such proposals, which are then placed before the Council in the following January.

(1) The Operatives' Federation (NFBTO) have applied for a *general wage-increase of 9d. per hour* in standard rates. This would be in addition to the 1d. per hour increase which will become due next February under the sliding scale clause based on the retail prices index.

(2) Notices for a *guaranteed week* have been submitted by the Operatives' National Federation and (independently) by the AUBTW. In both cases the proposals would eliminate the provision in National Working Rule 2A which allows payment for half the time lost on account of bad weather, plant breakdown, etc., and would substitute payments at the full hourly rate. Whereas the AUBTW would require a "guaranteed week" of payments for all hours when "available for work"—up to 46½, 44 or 41½ as the case may be—the NFBTO notice limits this to "a maximum of 44 hours."

(3) On behalf of the Unions of Woodworkers and Plumbers application has again been made for an increase in the *tool allowance* of 2d. per day at present operating in respect of those crafts under National Working Rules 3E(a) and (b), respectively. The Notices are for 6d. per day. In each case the application covers also—under 3E(d)—such apprentices in those crafts as are put to the expense of maintaining tools.

(4) The three Labourers' Unions have applied for several additions to the list of *extra payments* under NWR 3B *for various operators of mechanical plant* (dumpers, derricks, mechanical shovels and barrows, elevators and cranes). The additions would be for "continuous extra skill or responsibility" and the amount of extra payment specified would vary from 1d. to 6d. per hour.

(5) The Amalgamated Union of Building Trade Workers have submitted a notice in respect of the application to London of that part of National Working Rule 2 (Working Hours) which allows, in prescribed circumstances, a reduction of the dinner interval to "not less than ½-hour." The proposal would require that where overtime is worked the dinner interval should be not less than 45 minutes. The proposal would also substitute for approval by a local joint committee the sanction of the London Regional Joint Committee and would require that, without such sanction, one hour dinner must be observed.

Other Notices

Other notices from the National Operatives' Federation are:—

(6) A proposed addition to the duties of the National Joint Council under Clause 5 of its Memorandum of Agreement, in order to enable it to deal with "*The Conditions of Employment of Women.*"

(7) An addition to the Note in NWR 4 (Overtime) to the effect that operatives should

be paid their normal rate of wages for "*absence from work on any specially proclaimed public holiday.*"

There are also proposals concerning the special (Metropolitan) travelling allowances operating, with NJC sanction, in Manchester and Birmingham.

(8) In the case of *Manchester* the NFBTO proposes that the *No. 1 Free Area* (around the Town Hall) should be reduced from two miles to one mile.

(9) In the case of *Birmingham*, both the NFBTO and the AUBTW propose that the *commuted daily travelling allowance* should be increased from 2d. to 4d. per day.

There are two *Employers' notices*, submitted by the National Federation of Building Trades Employers, and having the following effect:—

(10) Under NWR 6B(2) any operative dismissed for misconduct should be disqualified from receiving payments under section (b) for "*travelling time at completion.*"

(11) The extra payment provision in NWR 3A(m) for labourers when using compressed air drills and *pneumatic machines* to be re-worded to cover "mechanically-driven compressed air or percussive drills picks, spades, rammers, tampers or hammers" (the actual payment remaining at 1d. per hour).

THE NEED FOR BETTER ROADS

FBI Recommendations

STRONG criticism of the inadequacy of the British road system is made in a report issued recently by the Federation of British Industries. This report was adopted by the Grand Council of the Federation on November 11 and has been sent to the Chancellor of the Exchequer.

"Our roads," it is stated, "are the most congested in Europe, more congested than those of the United States or of any other industrial power; they are indeed the most congested of the whole world.

"It has been estimated" the statement continues, "that the annual loss to the country through inadequate roads is about £60m., made up from loss of time. £26m.; loss of fuel, £12m.; loss of tyres, £3m.; loss by vehicle repairs, £9m.; and loss by accidents (insurance), £10m.

These figures represent an estimate based on 1946 prices. The loss, therefore, is now much greater.

For the period 1948-1952 the total capital expenditure in the following categories, excluding repairs and maintenance, was: Railways, £218m.; air transport, £69m.; coal, £152m.; gas, £177m.; electricity, £676m.; and manufacturing industry, £2,237m. Capital expenditure during the same period on roads has been authoritatively estimated at only £43m., which, however, includes street lighting and other ancillary items.

Schemes laid or to be laid before the Minister of Transport would require an expenditure of more than £1,000m., of which £100 m. would be needed for the removal of "black spots" alone. "It is not suggested," the statement continues, "that a programme of this size can be undertaken all at once but the magnitude of this sum is a measure of the seriousness of the position in the eyes of the experts who have drawn up the plans."

It is recommended that the Government be urged to reconsider priorities for new capital expenditure and for the allocation of raw materials, and to give a much higher priority to the construction of modern motorways and the development of existing roads. It is believed that an additional expenditure of from £20m. to £50m. a year for, say, five years, on roads should be authorised forthwith.

Tolls on special sections of new motorways, tunnels or bridges are suggested as a possible method of finance.

WALLPAPERS

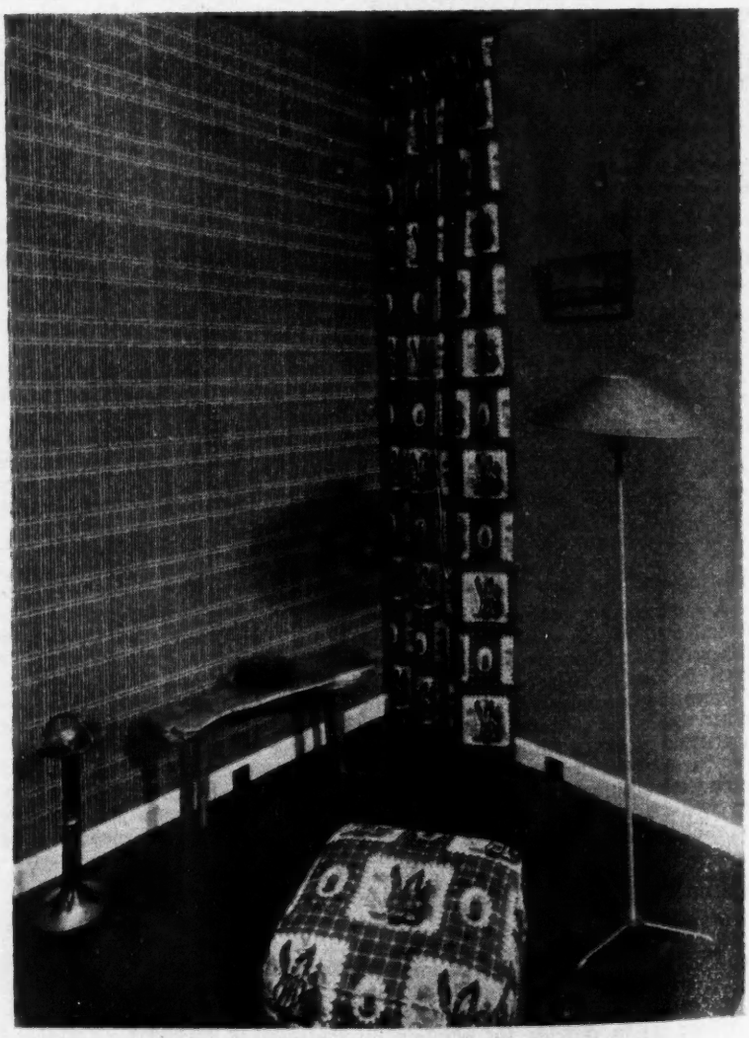
New Range of Designs

A NEW collection of "Crown" wallpapers, produced by the Wall Paper Manufacturers, Ltd., of Manchester, Lancs, are to be available after February, 1954, and will include various patterns designed to harmonise with contemporary furniture and furnishings. Colour psychology has been considered in their design, together with the effects that can be created with "bamboo" type wallpaper and paper depicting climbing plants of various kinds.

Texture papers that resemble canvas or linen will be among the range; and heavy embossed duplex papers that comprise two papers welded together for toughness and durability. The "Lincrusta" high-relief papers are now produced in an improved range comprising reproductions of wood and leather effects. A selection of papers with washable surfaces will be available for kitchen and bathroom wallpapers, and the designs will include checks of various sizes, together with marble patterns. A number of nursery wallpapers will be designed to have an educational value as well as featuring characters of fairy story fame.

Many of the patterns making up the complete range will be based on geometrical forms treated lightly with open ground spaces. Vertical stripes, squares, oval or rounded shapes will make their appearance in white, on blending grounds of pastel or strong colour. Lime green, vermilion, strong blues, terracotta, various hues of blue- and yellow-greens, and tones of grey and beige will be included in the range.

Preparations are being made by the company for the next collection of "Lancastria" papers to be distributed in the United States. For the home market, a Style and Exhibition Centre has been established at King's House, Manchester, to feature the firm's range of wallpapers in sectional room settings as well as on numerous wing boards and panels. Several distributors are making up special pattern books featuring a selection of the contemporary designs.



THE ABOVE SECTIONAL room setting displays a "bamboo" wallpaper in two tones of grey and white, combined with a mustard and white spot design. This scheme is designed for use in a living-room, and there are several other combinations in "Crown" wallpapers available.

Concrete Mixes and Proportions

1.—*Quality and Methods of Batching*

By RALPH E. BULLOCK, ARICS, AIArb.

THERE are many ways of specifying a mix of concrete; the most usual way in this country is by stating a nominal mix by volume and adding certain clauses covering the size, grading and quality of aggregates and (perhaps) the water/cement ratio.

The 1950 Report of the Productivity Team on Building in the USA mentions that it is common in America to specify by performance: Cl. 35, p. 42, states: "Almost invariably the mix is specified at the *strength* required in lb. per sq. in. at given times, instead of by volume of ingredients. This practice enables advantage to be taken of variations in the quality of the aggregate and cement, and the water content can be varied to suit the particular type of work, resulting in reduction in the cost of the product." These are real advantages, but there are also disadvantages in specifying by performance, such as (1) the variations described require skilled control, and (2) it may be 28 days before tests disclose that last month's concrete was not up to standard; the report does not disclose what happens then! The system's advantages are more obvious, however, when the concrete is bought "ready-mixed"; a practice more common in America than here, particularly in large towns.

There is, I am given to believe, a tendency in America to depart from specification by performance in favour of specification of a nominal mix by *weight*. Batching by weight has been recommended in this country by the Ministry of Works in several economy memoranda and advisory leaflets on the use of cement. These pamphlets state that weigh batching plus aggregate grading could "for equal concrete quality allow the use of a somewhat leaner mix" and mention many other ways of saving cost without sacrificing quality.

Weigh batching is less subject to errors than volume batching and produces more consistent results. The maximum changes due to bulking of sand, for example, may be 30 per cent. by volume when only 6 per cent. by weight. (Fig. 1.)

Weigh batchers are becoming more common at the various building and plant exhibitions and have some attraction for contractors for jobs of such a size that gravity feed hoppers are an economical proposition; it is quicker, as well as more accurate, to weigh than to measure the discharge from hoppers. It remains to be seen whether the saving in labour would alone justify the purchase of a weigh batcher costing over £100 for smaller work, although the contractor who is fortunate enough to possess one would undoubtedly use it in preference to volume batching, even when the concrete was specified by volume.

To change a nominal mix by volume to a nominal mix by weight, or *vice versa*, is comparatively easy on the job where the actual materials can be measured and weighed; although it is amazing how the ratio can vary from day to day, from hour to hour, or from load to load! To change a nominal mix by volume to an equivalent mix by weight theoretically for estimating purposes depends upon arriving at average unit weights of materials, which is not so easy.

To assist in comparing different specifications a set of mixes has been theoretically calculated for most of the common nominal proportions and it is based on the assumed average weights and other properties of materials shown in Table I. The properties of aggregates vary widely; the word "average" in the heading of Table I is in italics, because the distribution of aggregates is such that the average properties in one district are not the average in another, and who is to say which is an *average* district? All that can be claimed is that the properties shown are fairly common and that the weights and voids listed are those used throughout for all calculations in the tables that follow. Portland cement varies too, but is fairly consistent; the density of the mix will vary even under laboratory conditions with standard materials, and site conditions add no mean share to the variations which may be expected; everything stated here must therefore be assumed to have a range of approximation. There is, however, in all the accompanying tables a consistent comparison between the quantities of materials required whether the mixes be rich or weak.

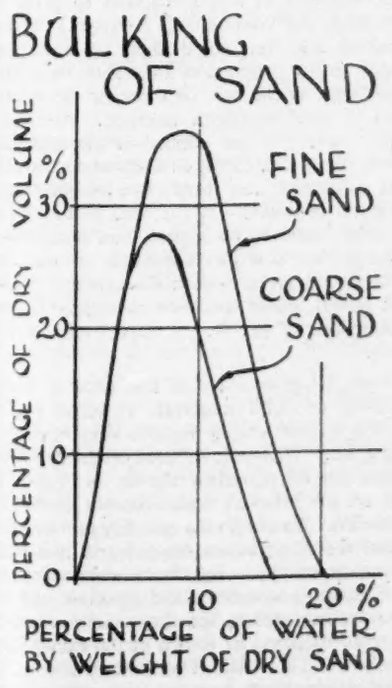


FIG. 1.

TABLE I

APPROXIMATE *AVERAGE* WEIGHTS OF MATERIALS

Material		Loose Weight		Solid Weight	Voids
		lb./cu. ft.	tons/cu. yd.	lb./cu. ft.	per cent.
Sand	Normal	100	1.20	165	39
	Moist	80	.96	165	52
Gravel	¼ in. to sand	88	1.06	165	47
	½ in. "	91	1.10	165	45
	1 in. "	93	1.12	165	44
	1½ in. "	95	1.15	165	42
	2 in. "	97	1.17	165	41
	1½ in. to ¾ in.	102	1.23	165	38
	3 in. to 1½ in.	97	1.17	165	41
Crushed Stone	¼ in. to sand	78	.94	165	53
	½ in. "	81	.98	165	51
	1 in. "	83	1.00	165	50
	2 in. "	86	1.04	165	48
Crushed Granite	¼ in. "	83	1.00	170	51
	½ in. "	85	1.03	170	50
	¾ in. "	88	1.06	170	48
	1 in. "	90	1.08	170	47
"All-in" Ballast		112	1.35	165	32
Portland Cement		90	1.08	195	54
Water		62.4	.75	62.4	—

PROPORTIONS BY WEIGHT

Table II gives a list of comparative mixes expressed by weight against the usual mixes expressed by volume; for instance the equivalent mix proportions for a 1:2:4 mix by volume, using ¾ in. gravel aggregate, are (reading from Table II) approximately 1:2.22:4.04 by weight. The formula for finding the equivalent mix by weight is:

$$\frac{\text{quantity in volumes by loose wt. of aggregate per cu. ft}}{\text{loose wt. of cement per cu. ft.}}$$

which, in the case quoted above (using the weights of Table I) is:

$$\text{sand} \quad \frac{2 \times 100}{90} = 2.22$$

$$\text{¾ in. gravel} \quad \frac{4 \times 91}{90} = 4.04$$

PROPORTIONS PER BAG OF CEMENT

Concrete is sometimes specified as the proportions by volume of fine and coarse aggregates to one bag (112 lb.) of cement. This form of specification is partly by volume and

TABLE II

EQUIVALENT MIXES BY WEIGHT

Nominal mix by volume	Weight of aggregate for unit weight of cement				
	Fine aggregate 100 lb./cu. ft.	Coarse aggregate			
		95 lb./cu. ft. 1¼ *in. gravel*	91 lb./cu. ft. ¾ *in. gravel* 2 *in. granite*	88 lb./cu. ft. ¾ *in. gravel* ¾ *in. granite*	83 lb./cu. ft. 1 *in. limestone* ¾ *in. granite*
1 : 1 : 2	1.11	2.11	2.02	1.96	1.84
1 : 1½ : 2½	1.39	2.64	2.53	2.44	2.31
1 : 1½ : 3	1.67	3.17	3.03	2.93	2.77
1 : 2 : 3	2.22	3.17	3.03	2.93	2.77
1 : 1½ : 4	1.67	4.22	4.04	3.91	3.69
1 : 1½ : 4½	1.67	4.75	4.55	4.40	4.15
1 : 2 : 4	2.22	4.22	4.04	3.91	3.69
1 : 2½ : 4	2.78	4.22	4.04	3.91	3.69
1 : 2½ : 5	2.78	5.28	5.06	4.89	4.61
1 : 3 : 5	3.33	5.28	5.06	4.89	4.61
1 : 3 : 6	3.33	6.33	6.07	5.87	5.53
1 : 4 : 8	4.44	8.44	8.09	7.82	7.38

partly by weight and is designed to avoid the errors due to splitting a bag of cement and measuring part of the contents.

To convert the nominal proportions by volume to the mix in cubic feet per bag of cement, multiply fine and coarse aggregate proportions by $\frac{112}{90}$ or 1.24.

To convert the mix in cubic feet per bag into the nominal proportions by volume, multiply by $\frac{90}{112}$ or 0.8.

To convert the nominal proportions *by weight* into lb. per bag, multiply by 112.

COMBINED AGGREGATE

Before going any further, it would be as well to glance over a few elementary fundamentals. The average student of estimating is often very confused over what happens in the mixing of concrete. A common method of analysing the mix, which increases rather than relieves the confusion, is: "Take one part of cement, two parts of sand, four parts of gravel, multiply by the cost of each material, divide by seven (the sum of the parts), add 40 per cent. for shrinkage and 10 per cent. for waste." The student who is thoughtful enough to ask questions naturally asks "What shrinks?"—he, quite rightly, cannot imagine the stones in the aggregate shrinking. He is then told that "the cement fills the voids in the sand, the sand fills the voids in the gravel" (. . . the pig jumps over the stile and the old woman gets home that night), but that does not tie up with 40 per cent. and "Why not divide by four instead of seven, just as you divide by three in a 1:3 mortar mix?"—or do you? . . .

Let us look at the mix from the point of view of the cement. The cement is only concerned with the total combined aggregate; the cement does not care whether you put in the aggregate as one "all-in" aggregate, or as separate proportions of fine and coarse, or in many parcels of carefully graded aggregates; it is the ratio between the cement and the total surface area of all the stones in the combined aggregate that matters. (The water/cement ratio also matters, but we will come to that later.) The usual method of inserting fine and coarse aggregates separately is a practical compromise to ensure that the overall size grading is approximately that required for maximum compaction.

Imagine two heaps of aggregate: one containing two volumes of fine aggregate (sand) and one containing four volumes of coarse aggregate (gravel). If they are mixed together, the resultant volume will not be six, because the sand will filter in among the stones of the gravel; nor will it be four, because the particles of sand will get between the stones of the gravel and push them apart, and anyway the absolute volume of the sand cannot in any arbitrary mix be expected to be *exactly* equal to the volume of the voids in the gravel. The resultant volume will probably be somewhere near an average between four and six, say, approximately five volumes, depending upon the relative stone sizes.

So, the equivalent "all-in" mix for a 1:2:4 concrete is not 1:6, as some affirm, but is nearer to 1:5. Similarly, the equivalent "all-in" mix for a 1:3:6 concrete is approximately 1:7½ $\left(\frac{9+6}{2} = 7\frac{1}{2}\right)$

This calculation gives the mean only. The relationship between a nominal three part mix and an equivalent "all-in" mix is shown in the graph Fig. 2. The double lines indicating the range spread of each nominal mix can in the graph be compared with the "all-in" proportions shown horizontally across its centre. All this is true, providing the "all-in" aggregate is really equivalent to the combined mix . . . those who use it appear to be satisfied that it is so!

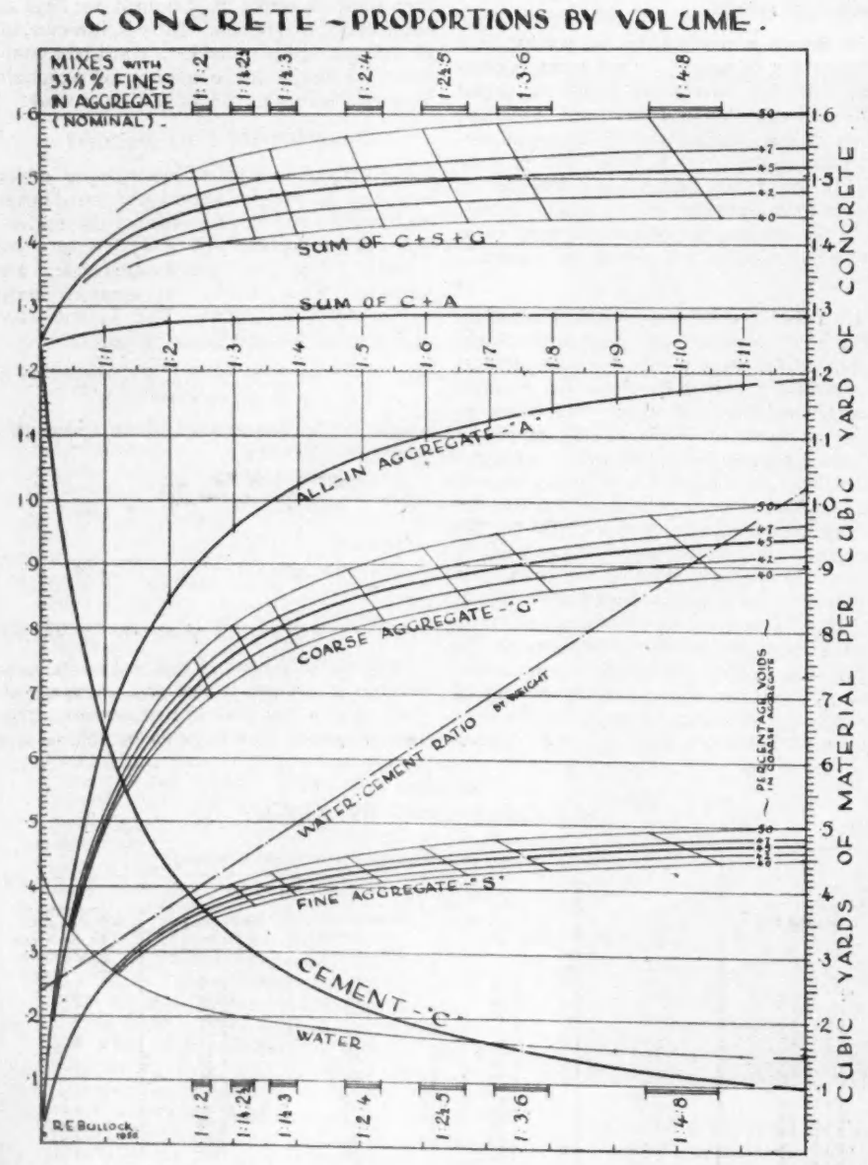


FIG. 2.

MATERIAL QUANTITIES: NOMINAL MIX

In a mix of concrete, there are usually three volumes of solids to consider and price (cement: sand: coarse aggregate) and one volume of water, which is seldom priced in the analysis. If we knew the *sum* of the separate loose volumes of solids required to make a combined unit volume (say 1 cu. yd.) of wet concrete, all that would then be necessary would be to proportion that sum over the ingredients in the mix to discover the quantities of each ingredient required. After all, each is put into the hopper in the specified proportions, e.g., for 1:3:6 concrete, as one part of cement and three parts of sand and six parts of gravel. If the sum of the loose volumes ought to be higher than assumed—because (for example) the voids in one ingredient are greater—then the cement, sand and gravel would each be increased in the proportions of $\frac{1}{10}$, $\frac{3}{10}$, $\frac{6}{10}$, respectively, of the extra.

Table III gives a list of the sums of loose volumes of solid materials required for a number of mixes using various sizes of coarse aggregate. This table is based on the assumed properties of materials shown in Table I, and on the assumed water content shown in Table IV. To obtain the quantity of materials required for any of the mixes listed, it is only necessary to divide the figure shown by the sum of the proportions and multiply out by its own proportion, for the volume of each material required, as shown in the example at the foot of Table III. This method gives a far truer comparison between the proportions required for different mixes or different aggregates than could be obtained by adding

a round " 40 per cent. for shrinkage " irrespective of the mix, or the voids in the coarse aggregate.

The task of proportioning the sum of the solids from Table III over cement and aggregates may take a little longer than looking them up in a table giving cement, sand and coarse aggregate in separate columns. Such a table could be made from Table III very quickly if required, but Table III is possibly more easily remembered as it stands than it would be if so divided. The *average* sum of total solids is as follows:

For three part mixes 1.48 (approximately 1.5)
For all-in aggregates 1.28 (approximately 1.3)
For cement mortars 1.40 (approximately 1.4)

These approximate averages are quite adequate for estimating when the quantities of concrete are not large; their degree of accuracy can be seen at a glance in the graph (Fig. 2).

The figures in Table III are not based on empirical tests which might show numerous deviations between one mix and another, but on theoretical calculation for a solid dense mix. No concrete ever does produce a 100 per cent perfect mix, so the figures will be slightly on the high side, a small fault to set against complete consistency and one that could be offset by adding less for waste. It is possible to take any of the quantities in these tables and reduce the mix to an absolute volume of 27 cubic feet of materials per cubic yard of concrete in accordance with the following example of a 1 : 3 : 6 mix using ¾ in. gravel as coarse aggregate:

1st step—convert to weight in pounds:

			Per yard cube:
CEMENT	from Table III	=	.15 cu. yd.
	× 1.1	=	.165 tons
	× 2240	=	369.6 lb.
SAND	from Table III	=	.45 cu. yd.
	× 1.2	=	.54 tons
	× 2240	=	1210 lb.
GRAVEL	from Table III	=	.90 cu. yd.
	× 1.1	=	.99 tons
	× 2240	=	2218 lb.
WATER	from Table IV	=	26¾ gals.
	× 10	=	267.5 lb.

2nd step—divide each by the solid weight (from Table I) to give the absolute volume in cubic feet of solid material:

			Cubic feet (solid)
CEMENT	369.6 ÷ 195	=	1.89
SAND	1210 ÷ 165	=	7.33
GRAVEL	2218 ÷ 165	=	13.44
WATER	267.5 ÷ 62.4	=	4.29
TOTAL PER CU. YD. OF CONCRETE			26.95 cu. ft.

This is near enough 27 cu. ft. Personal experiment will prove that any mix proportions calculated from Table III can likewise be reduced to an absolute volume of 27 cu. ft. per cu. yd. by the process shown above.

The materials in any concrete estimates based on Table III will, therefore, be consistent whatever the mix. These and other figures are also shown plotted in the graph (Fig. 2) to facilitate interpolation for other mixes and aggregates. The graph will repay study to show the interrelation between voids, percentage of sand, water content, etc., and the bearing of each on the proportions of the mix.

TABLE III

SUM OF TOTAL SOLIDS PER CUBIC YARD OF MIX

Mix	Cement *plus* fine aggregate *plus* coarse aggregate of type shown: 50 per cent. voids: 1 *in. limestone* ¾ *in. granite*	47 per cent. voids: ⅜ *in. gravel* 1 *in. granite*	45 per cent. voids: ¾ *in gravel*	42 per cent. voids: 1½ *in. gravel*	Mix	Cement *plus* "all-in" aggregate 32 per cent. voids:	Cement *plus* sand (*mortar*) 39 per cent. voids
	cu. yds.	cu. yds.	cu. yds.	cu. yds.		cu. yds.	cu. yds.
1 : 1 : 2	1.51	1.47	1.45	1.42	1 : 1	1.26	1.34
1 : 1½ : 2½	1.53	1.49	1.47	1.43	1 : 1½	1.27	1.36
1 : 1½ : 3	1.54	1.50	1.48	1.44	1 : 2	1.27	1.37
1 : 2 : 3	1.54	1.50	1.47	1.44	1 : 2½	1.28	1.38
1 : 1½ : 4	1.57	1.52	1.49	1.45	1 : 3	1.28	1.39
1 : 1½ : 4½	1.58	1.53	1.50	1.46	1 : 3½	1.28	1.40
1 : 2 : 4	1.56	1.52	1.49	1.56	1 : 4	1.28	1.40
1 : 2½ : 4	1.55	1.51	1.49	1.45	1 : 5	1.28	1.41
1 : 2½ : 5	1.58	1.53	1.50	1.46	1 : 6	1.28	1.41
1 : 3 : 5	1.57	1.52	1.49	1.46	1 : 7	1.29	1.42
1 : 3 : 6	1.58	1.53	1.50	1.47	1 : 9	1.29	1.42
1 : 3 : 9	1.62	1.55	1.52	1.48	1 : 10	1.29	1.43
1 : 4 : 8	1.59	1.54	1.51	1.47	1 : 12	1.29	1.43

The *volume* of each ingredient of the mix may be found by dividing the tabulated figures in the proportions of the mix. The *weight* of each (if required) may then be found by multiplying the volume in cu. yds. by the weight of the material in tons per cu. yd. (from Table I).

Example 1 : *A cu. yd. of* 1 : 3 : 6 *mix using a* ¾ *in. gravel aggregate* (equals, by Table I, 45 per cent. voids) *would require:*

Cement	1/10 of 1.50	= .15 cu. yds.	(.15 × 1.1	= .165 tons)
Sand	3/10 „	= .45 „	(.45 × 1.2	= .54 tons)
Gravel	6/10 „	= .90 „	(.90 × 1.1	= .99 tons)

Example 2 : *A cu. yd. of* 1 : 8 " *all-in* " *mix would require:*

Cement	1/8 of 1.29	= .143 cu. yds.	(× 1.1	= .16 tons)
Aggregate	8 × .143	= 1.144 „	(× 1.3	= 1.49 tons)

Table III should prove useful to estimators and Fig. 2 to students of estimating.

The graph only contains those mixes in which the volume of sand is half the volume of coarse aggregate; for mixes containing a higher proportion of sand (viz., 1 : 1 : 1½, 1 : 2 : 3, 1 : 2½ : 4, 1 : 3 : 5, 1 : 4 : 6, etc.) the curves for coarse and fine aggregates would be nearer together; for mixes containing a lower proportion of sand (viz., 1 : 1 : 3, 1 : 1½ : 4, 1 : 1½ : 4½, 1 : 2½ : 7, 1 : 3 : 9, etc.) the curves for coarse and fine aggregates would be further apart. The curves for the sum of the solids move in sympathy with the fine aggregate curves.

In using the graph to obtain the quantities of materials for a cubic yard of a required mix, it will be found that the range covered by that mix is shown by a double line. To find a particular place in that line it is necessary to drop a vertical through the point where the diagonal crosses the curve for the voids in the particular coarse aggregate to be used. This vertical will cut the cement and water curves and the equivalent " all-in " curves at the points which correspond to the appropriate mix. All these points may be read off at the sides of the graph in cubic yards. To obtain the water in gallons, multiply cubic yards by 168.4. In using the curve for the water/cement ratio read as units and not as cubic yards.

The example analysed earlier (i.e., a 1 : 3 : 6 mix using an aggregate with 45 per cent. voids) has been picked out on the graph for guidance and includes a mark at each reading on the right-hand scale.

It will be seen from the graph that for any one mix, the full range of variation due to the voids in the aggregate is approximately equal to the 10 per cent. normally allowed for " waste."

BULKING OF SAND

Moist sand in Table I is shown as weighing 80 lb./cu. ft. against 100 lb./cu. ft. for normally " dry " sand, but it is asked, and often asked, " Surely with the additional moisture the sand will be heavier and not lighter? "—Yes, provided it is undisturbed, but when moist sand is moved; turned over; filled into a lorry barrow, hopper, or gauge box the moisture causes friction between the grains of sand, so that it does not settle down into as small a space. Because the sand now occupies more space, its weight *per cubic foot* is less. It will be seen from Fig. 1 that sand may increase by almost 30 per cent in volume for only 6 per cent increase in weight due to moisture adhering to the surface of the grains. When the sand is really wet, however, the bulking becomes less, so that saturated sand shows no bulking and settles down into the same space as dry sand.

This is one reason why weigh-batching is more accurate than volume gauging, unless allowance is made for the degree of bulking.

WATER AND STRENGTH

The water content in Table IV is the total water, viz., the water added to the mix plus the water already adhering to the sand and coarse aggregate (known as surface moisture) but excluding any water that might be absorbed by the grains (about 1 per cent. by weight of coarse aggregate, ½ per cent. by weight of sand, 25 to 30 per cent. by weight of broken brick and lightweight aggregates).

The water/cement ratio (that is the weight of the water in lb. divided by the weight of the cement in lb., per batch or per yard) is inversely proportional to the strength of the concrete. The control of water is therefore very important because a rich mix with too much water will not be a strong mix. The cement requires a certain amount of water to set it, the aggregate requires a certain amount of water to wet it; any excess water dries out and is replaced by air causing the resulting mix to be less dense than it might have been. Excess water also increases drying shrinkage (a true shrinkage this time, not the " shrinkage " mentioned earlier). So, consult Table V to see the relationship between the water/cement ratio and the ultimate compressive strength of the concrete.

By comparing Table V with Table IV, it is possible to pick out a suitable mix for given strength requirements. By comparing Table IV (or the water/cement ratio curve in

TABLE IV

APPROXIMATE WATER CONTENT—for a workable slump 2 in. to 4 in.

Nominal Mix	W/C ratio by weight	Water per cu. yd. of concrete	Water per bag of cement	All-in Mix	W/C ratio by weight	Water per cu. yd. of concrete	Water per bag of cement
		gals.	gals.			gals.	gals.
1 : 1 : 2	.40	35½	4½	1 : 1	.31	47	3½
1 : 1½ : 2½	.45	33½	5	1 : 1½	.34	42	3¾
1 : 1½ : 3	.49	31½	5½	1 : 2	.37	38	4
1 : 2 : 3	.52	30¾	5¾	1 : 2½	.40	36	4½
1 : 1½ : 4	.54	30	6	1 : 3	.44	34	5
1 : 1½ : 4½	.57	29½	6½	1 : 3½	.47	32½	5½
1 : 2 : 4	.57	29½	6½	1 : 4	.50	31	5½
1 : 2½ : 4	.60	28¾	6¾	1 : 5	.57	29½	6½
1 : 2½ : 5	.65	28	7½	1 : 6	.63	28	7
1 : 3 : 5	.68	27½	7¾	1 : 7	.70	27½	7¾
1 : 3 : 6	.73	26½	8½	1 : 9	.83	26	9½
1 : 3 : 9	.89	25½	10	1 : 10	.89	25½	10
1 : 4 : 8	.90	25½	10	1 : 12	1.02	24½	11½

The " all-in " mixes are not equivalent to the nominal mixes on the same line ; an equivalent water/cement ratio is an indication of an approximately equivalent mix.

the graph, Fig. 2) with Table V, the approximate strength of a chosen mix can be ascertained.

If a mix is too dry for working, it will be weakened by adding water only; to keep the strength, proportionately more cement and sand should also be added. The larger the aggregate size, the greater is the strength for a given cement content; conversely a greater proportion of fines decreases the strength, but increases the workability. Concrete is usually a compromise. Mechanical tamping enables a drier mix to be used, thus producing stronger concrete for the same cement content. A rounded aggregate will produce stronger concrete than an angular aggregate simply because less water is needed for workability.

It is possible to save cement for a given strength by using less water; it is possible to use less water in the mix by using rounded aggregates, large aggregates, well graded aggregates, consistent measured batching and mechanical tamping, or any combination of these.

TABLE V

EFFECT OF WATER CONTENT ON STRENGTH—Dense Portland Cement Concrete

Compressive strength at 28 days	Water/cement ratio by weight
lb./sq. in.	
5,000	.45
4,500	.49
4,000	.54
3,500	.59
3,000	.65
2,500	.72
2,000	.76
1,500	.83
1,000	.88
750	.92
500	.94
250	.98

Many books have been published, mostly in America, about the mixing of concrete and the proportioning of materials, but almost exclusively they are written from the viewpoint of the engineer. The practical builder, on the other hand, is not concerned with the calculations and requirements which prompt all the clauses in a specification; he receives the specification and has to make a job of it. This article has been prepared to assist contractors' estimators (and any others who are interested) to calculate consistently the approximate quantity of materials required for any dense mix whether specified by strength, volume, or weight; to understand a few of the relationships between the different forms of specification and batching; and thus to estimate with a more intimate knowledge of and respect for the wench known as " Plain Concrete."

(To be concluded.)

MINING, BUILDING AND PLANNING

Comparison of Conditions Imposed for Coal and Salt Extraction

By a Legal Correspondent

IT may be of interest to builders generally to learn of difficulties which are being experienced by builders in at least one part of the country. The area is a mining area, and it follows that there is a possible risk of subsidence. Builders who have put in applications for planning permission to the local planning authority have received as a condition of their consent " that the foundations of the dwelling house shall be suitably strengthened by reinforcement to the satisfaction of the local authority."

The reason given for this condition is " to ensure that reasonable precautions are taken in the construction of the building to minimize damage which may be caused by mining operations under and in the vicinity of the proposed site." This may be satisfactory from the point of view of the National Coal Board as mine owners, but it does entail additional cost in the erection of the houses and, in many cases, although the area is officially a mining area, the danger may be remote. The builder asks with some logic what has this to do with the planning authority and why should he be put to the expense of minimizing the liability to compensation of the National Coal Board under the Coal Mining (Subsidence) Act, 1950. Some explanation of this is due and will be attempted here.

In the first place, the planning authority on receiving an application which affects a mining area in the natural course of events consult the National Coal Board and the Mineral Valuer. The observations received are communicated to the applicant, but, to the knowledge of the writer, in some cases they are not framed as conditions of the consent. The difference between a notification and a condition is that the builder, if notified, can make up his mind as to his course of action, but if a condition is imposed the local planning authority can enforce the condition even to the extent of pulling down the house if it is not suitably erected. If it is framed as a *condition* then the further question arises whether the planning authority are acting within their powers and whether the condition is a proper *planning* condition. Unfortunately it appears that it is.

Limit to Compensation

Planning covers a multitude of sins including, in the Preamble to the Town and Country Planning Act, 1947, control over the use of land. The way in which foundations are laid is a use of land which has its reactions on other land interests, namely, the mining interests. Support is given to this view by the fact that the Minister has stated that planning powers should be used on applications to undertake underground mining in order to secure support for surface interests, so it seems logical that he should be equally willing to protect mining interests when applications are made for surface development. It is interesting that although compensation is payable under the Coal Mining (Subsidence) Act, 1950, it is only payable in respect of damage to houses of a rateable value not exceeding £32. Therefore compensation may be payable by the Coal Board for damage done by subsidence to the smaller house but the larger must take its own risk. Claims for compensation do not appear to be affected by the fact that the requirements specified by the Board have not been complied with.

The position can be contrasted with that which obtains in Cheshire under the Cheshire Brine Pumping (Compensation for Subsidence) Act, 1952. In Cheshire the problem is also subsidence, but the Cheshire Brine Subsidence Compensation Board are entitled under S. 38 of that Act to prescribe areas, and where they have done so the local planning authority are required to consult the Board before approving applications for planning permission, and, if requested by the Board, to attach a copy of any recommendations issued by the Board. It is stated in the Regulations that unless the Board otherwise decides, these recommendations must be complied with, or, in the event of subsidence, compensation will not be paid.

Special Provisions

There is special provision for buildings in " Requirements and Tables of Strength of Materials in the Erection of Buildings." These are divided into (a) general conditions; (b) buildings where timber framing is used; (c) buildings where steel framing is used; (d) reinforced concrete buildings; and (e) large buildings, viz., those exceeding a superficial floor area of 2,500 sq. ft., e.g., cinemas, schools, concert halls.

Among the many general conditions are these: There is a provision that all new buildings, including any whose condition necessitates major new construction, shall be designed and constructed so that they can be lifted or lowered by means of hydraulic or other jacks as a whole without undue disturbance of alignment. Another requirement is that concrete footings must be provided of sufficient depth and width and to be composed of materials of the best of their respective kinds recognised throughout the building trade.

A comparison between the procedure under the Coal Mining (Subsidence) Act, 1950 and the Cheshire Brine Pumping (Compensation for Subsidence) Act, 1952, is interesting. Perhaps a more exhaustive control in brine areas is necessary, but it does seem that there may be a defect in the former Act in that the payment of compensation is not affected by the fact that the builder has disregarded the requirements notified to him by the planning authority. This may in turn react unfavourably on the builder. It may make the local planning authority more prone to constitute these notifications into conditions and thus enforce their requirements rather than leave it to the discretion of the builder to comply or not according to his view of the risk involved.

BUILDING FOREMANSHIP

Proposals for Certificate Course and Examination

LONG-TERM proposals for the training of general foremen—involving examinations to establish recognised standards of proficiency—are contained in the recently published Second Report of the Standing Committee for the Training of General Foremen in the Building Industry.* The report recalls the circumstances which led to the formation of the standing committee after an investigation of foremanship problems had been carried out by the National Federation of Building Trades Employers in 1948, and goes on to describe the progress that has been made in recent years.

The standing committee—on which are represented the NFBTE, the Ministry of Education, the technical colleges, the Institute of Builders and general foremen's organisations—was set up to keep foremanship training under review and it is illustrative of the need that existed for training facilities that by 1951 foremanship courses were being provided at over 50 technical colleges throughout the country. Since its formation the standing committee has been primarily concerned with overcoming the immediate problem arising from the shortage of general foremen by catering for the needs of foremen at all levels of experience, age and qualification; but it has always been aware of the need for a more long-term approach to the question based upon the recruitment to the ranks of general foremen of young men already possessed of adequate technical qualifications and background. In this second report, therefore, the standing committee introduces an outline syllabus for a course designed to meet this need.

Requirements of Candidates

The candidate for admission to this certificate course is required to hold a City and Guilds full technological certificate in a building craft and an ordinary national certificate in building. The standing committee does not, however, wish to exclude capable men who have not obtained these technical qualifications. In the case of men over 30 years of age, therefore, satisfactory completion of a preparatory course of general foremanship studies may be accepted under certain conditions in place of the ordinary National certificate.

In the Certificate course the emphasis will be entirely on the supervisory function, particularly so far as site administration and control and site organisation and methods are concerned. Much more time will, therefore, be devoted to advising the potential general foreman upon how to develop the qualities of leadership, how to organise work economically on the site, and how to ensure that the work of the various trades is properly planned, supervised and correlated.

In the course of its work the standing committee has become increasingly aware of the fact that at present there is no criterion by which a technical college can judge whether the instruction it is providing is at the appropriate level. This, the committee feels, is unsatisfactory both for the colleges and for the students, while employers have no ready method of assessing the performance of a man who has attended a course of foremanship study.

The standing committee is, therefore, considering arrangements, in co-operation with an appropriate examining organisation, for the introduction of examinations based upon the certificate course in general foremanship studies. The examination will be open to all students who have satisfactorily completed a course of instruction organised on the lines recommended by the standing committee. This will give technical colleges offering instruction and students taking classes a common aim and will provide a guide as to the level of instruction required. "Naturally," says the committee's second report, "there will be initial difficulties in securing this common standard, but the response made by technical colleges in the past few years to the need for instruction has been such that the Committee is confident that there will be a similar readiness to adapt the instruction, wherever this is necessary, to the certificate course."

Candidates successful in the examination will be awarded a certificate of national standing and currency.

* General Foremanship Studies: Second Report of the Standing Committee for the Training of General Foremen in the Building Industry. Published by the N.F.B.T.E., price 1s. 6d. net.

Foremen's Luncheon

MR. NIGEL HANNEN, FIOB (Vice-President NFBTE) presided at a luncheon given to the Employers' and General Foremen's National Joint Advisory Committee at the Building Exhibition, Olympia, on November 27. In proposing the health of the General Foremen, he paid tribute to the part the foremen played in the creation of good building, and welcomed the move towards unity of the various foremen's and clerks of works' associations which had begun in 1949. MR. W. R. TOOGOOD responded, and pledged the full assistance of foremen and clerks of works in furthering the work.

NFBTE PRESIDENCY

Mr. G. W. Grosvenor Nominated

MR. G. W. GROSVENOR, of Bath, Somerset, has been nominated by the council of the National Federation of Building Trades Employers to be president of the Federation in 1954. Other nominations by the council are:—*Senior vice-president:* Mr. Harvey G. Frost, OBE (Bury St. Edmunds). *Junior vice-presidents:* Mr. Nigel Hannen (London) and Mr. L. A. Walden (Henley-on-Thames).

AWARDS FOR PLASTERING

Crombie Trophy and Tyzack Trowels

THE PLASTERERS' NATIONAL JOINT ADVISORY COMMITTEE have now made the annual awards of the Crombie Trophy and Tyzack Trowels, as follows:—

Crombie Trophy: Willesden Technical College.

Tyzack Trowels: Silver Trowel, A. L. Edge (Willesden Technical College); Stainless Steel Trowel, A. Foot (Willesden Technical College).

The Stockton Test

A special showing of the film "The Stockton Test," depicting the modernisation of sub-standard properties, will be given by the Building Industry Distributors (London Area), in conjunction with the South London Merchants' Association, at the Lambeth Town Hall, Brixton Hill, SW2, on December 8, at 2.30 pm. Particulars are available from the Secretary at 361-3, Old Kent-road, SE1. The East London Merchants' Association (in conjunction with BID) have arranged for the film to be shown at East Ham Town Hall at 3 p.m. on December 16.

MUNICIPAL BUILDING MANAGEMENT

Institute's First Annual Dinner

NEARLY one hundred members and guests of the London Region of the Institute of Municipal Building Management attended the Region's first annual dinner and dance, which was held at the Criterion Restaurant, London, on November 27.

Proposing the toast of the Institute, MR. C. S. STANLEY, a member of the National Council, said it was now only in its infancy. It was two years ago that ten building managers from various local authorities met to discuss the desirability of forming an institute. The Working Party Report for 1950 stated that in 1949 local authorities employed 144,000 men on building and civil engineering maintenance works and a further 27,000 on capital schemes, and it was with that and other facts before them that this group decided to convene a national meeting. And so the Institute was born. Its aims, Mr. Stanley continued, were to maintain the status of building managers; to set a standard of efficiency in local-authority building management and administration; to promote technical education facilities for its members; and to draw up an examination syllabus for membership of the Institute.

Mr. A. Ayres, chairman of the National Council, responded to this toast, and a toast to the visitors, proposed by Mr. J. Dudson, was responded to by Mr. G. L. A. Downing, OBE, Borough Engineer of Hackney.

Replying to a toast to himself, proposed by Mr. C. G. Frankham, MR. V. W. ALLEN, chairman of the London Region, said he hoped that the Institute would some day rank equal with some of the other institutes in this country.

PAINTING AND DECORATING

Brixton School of Building's Courses

THE LCC BRIXTON SCHOOL OF BUILDING, Ferndale-road, SW4, have announced that the fourth short course in Colour and Design for painters and decorators will commence on January 15 next at 6.30 p.m. The courses are of 12 weeks' duration and require an attendance of one evening each week.

These courses are specially arranged to deal with the particular problems of the painter and decorator and to stimulate and suggest ideas in the use of colour in decoration. The lectures and demonstrations include colour theory and its practical application, artificial light and colour, colour mixing, historical colours and the preparation of colour schemes.

The school has also announced that the eighth short course in Spray Painting for painters and decorators will be held from January 11 until March 30 next. These courses are in two grades, elementary and intermediate, each of 12 weeks' duration, requiring an attendance of two evenings each week.

They are intended for craftsmen with adequate industrial experience who wish to broaden their knowledge and skill in this branch of the painting and decorating trade.

Intending students for either course should apply to the Secretary at the school for an enrolment card. The fee, in both cases, for London students is 12s. 6d. for the course. Students outside the LCC area must apply to their local education authority for a voucher if they wish to be admitted at the London fee.

NEWS IN BRIEF

New Towns

A deputation representing voluntary organisations in the 14 New Towns was received on November 26 by Sir Thomas Sheepshanks, Permanent Secretary to the Ministry of Housing and Local Government, on behalf of the Minister. A representative of the Ministry of Education was also present.

Hand Tools Investigation

Complaints about the quality of present-day hand tools which craftsmen in the building industry normally buy for themselves, are to be investigated by the Eastern Regional Board for Industry. The investigation follows a report from the Watford District Advisory Committee which pointed out that poor quality tools mean loss of production and efficiency at a time when both were never more urgently needed, as well as additional expense to building workers.

Proposed House Building Department

At a conference on November 13 of representatives of the Birmingham House Building and Housing Management Committees it was decided to recommend that the Birmingham City Council set up its own house building organisation. The recommendation is to be put before the Council on January 5.

Ald. A. F. Bradbeer, who presided at the conference, stated that every effort should be made for the first scheme of building by direct labour to be begun in the spring. In its initial stages, the building of houses only was envisaged. It would also be recommended that the joint conference should continue in existence for advisory purposes, said Ald. Bradbeer.

British Standards

The following British Standards have been recently issued by the British Standards Institution: BS, 2032, "Aluminium Bronze Rods, Sections and Forgings," price 2s. 6d.; BS 2033, "Aluminium Nickel Iron Bronze Rods and Forgings," price 2s. 6d.; BS 690, "Asbestos - Cement Slates and Sheets," price 4s.; BS 2035, "Cast Iron Flanged Pipes and Flanged Fittings," price 6s.; BS 1224, "Electroplated Coatings of Nickel and Chromium," price 2s. 6d.; BS 2018, "Plaited Cords made from Hemp," price 2s. 6d.; BS 2037, "Aluminium Alloy Ladders, Steps and Trestles," price 2s. 6d.; and BS 2019, "Lines made from Cotton and Hemp," price 2s. 6d. Copies are available from the British Standards Institution, Sales Branch, 2, Park-street, W1.

Domestic Insulation

The insulation and draughtproofing of existing houses by the householders themselves is described in a booklet published by the Domestic Insulation Committee of the Solid Fuel, Gas and Electricity Industries. Entitled "Make your house cosier in winter," it contains diagrams illustrating the various ways in which houses lose valuable heat in winter, as well as practical notes on methods by which much of the wastage can be prevented. The main section of the booklet deals with means of eliminating the heat losses in the roof. The materials available and their application are described, together with the ways of dealing with draughts. The remainder of the booklet concerns the lagging of hot-water tanks, cylinders and pipes. Copies are available through gas and electricity showrooms, or from the Domestic Insulation Committee's offices at 3, Upper Belgrave-street, SW1.

The late Mr. Wormleighton

The death occurred on November 24 of Mr. S. H. Wormleighton, at the age of 76. He had been sales and technical representative for the Ruberoid Co., Ltd., for Kent, Surrey and Sussex since 1912, until his retirement in 1946.

Hammersmith Exhibition

There will be an exhibition of work by the students of the Hammersmith School of Building and Arts and Crafts at the school in Lime-grove, W12, which will be open to visitors from December 9 to 16, between 10.30 a.m. and 8 p.m. Parties from industry, secondary and grammar schools will be welcome and guides may be arranged by telephoning Shepherd's Bush 3321.

Estate Duty on Family Businesses

In the belief that the liability to estate duty on holdings in certain types of private companies is excessive, the Federation of British Industries, 21, Tothill-street, SW1, has issued a memorandum, "Estate Duty on Family Businesses," in which recommendations are put forward for changes in the law to ease the burden of this form of taxation.

Coronation Carpets

More than 150 carpets, cut from the gold and blue carpets laid in Westminster Abbey and the Annexe for the Coronation ceremony, have been allocated among applicants from this country and overseas by the Ministry of Works, and will be despatched to churches and Naval and RAF chapels at home and to churches in Commonwealth countries. A few will go also to churches in the USA. Sizes of the pieces vary from small strips for altar steps to large lengths for aisles. The total sale of carpets is expected to realise about £9,000.

Engineering Lectures

The post-graduate lectures for the spring term, January to March, 1954, held by the Department of Civil and Mechanical Engineering, Battersea Polytechnic, SW11, will include Course B, "Theory and Design of Shell Roofs," by A. Goldstein, BSc(Eng), AMICE, and P. Morice, BSc(Eng), PhD; and also Course E, "Specifications and Quantities for Civil Engineering Contracts," by D. H. Gladwyn, BSc(Eng). No further enrolments can be taken for Course B, but it is anticipated that those lectures will be repeated the following session. In Course E, the lectures will cover the relevant syllabus for the examination of the Institution of Structural Engineers, and enrolment forms may be obtained from the Secretary, Civil Engineering Department, Battersea Polytechnic, SW11.

Research Fellowships

Applications are now being invited for the 1954 Leverhulme research fellowships and grants. These are intended for senior workers who are prevented by routine duties or pressure of other work from carrying out research. They are limited to British-born subjects normally resident in the United Kingdom. The duration of the awards will not normally extend over more than two years or less than three months, and the amount will depend on the nature of the research and the circumstances of the applicant. Forms of application may be obtained from the Secretary, Miss M. Branney, Leverhulme Research Fellowships, 3-5, Salisbury-square, EC4. Applications must be received on or before December 31, and awards will be announced in May and will date from September 1, 1954.

Contemporary Lighting Fittings

An exhibition of contemporary lighting fittings will be held from December 7 to January 2 at the Building Centre, 26, Store-street, WC1.

School's Architect

Mr. L. Hugh Wilson, Canterbury City Architect, is the architect for the new Church of England aided secondary modern school to be built for the Diocesan Education Committee at St. Stephen's Hill, Canterbury. Permission has been granted by Canterbury City Council.

Changes of Address

As from December 7, the location of the London plant branch office of Crompton Parkinson, Ltd., will be moved from Crompton House, Aldwych, WC2, to 1-3, Brixton-road, SW9. (Tel. No.: Reliance 7676.) The manager is Mr. K. Younger. The other departments of the company, located at Crompton House, will remain there

The Institution of Heating and Ventilating Engineers have, from November 19, changed their address to 49, Cadogan-square, London, SW1, tel.: Sloane 1601 and 3158.

Sites for BIF

The most suitable site for a permanent home for the British Industries Fair would be the Crystal Palace, states the report, published on November 26 as a White Paper, of the sub-committee appointed by the Exhibitions Advisory Committee to investigate and recommend on the future of the fair. The sub-committee, under the chairmanship of Sir Ernest Goodale, consider that the Birmingham section of the fair, with its own permanent building, should remain at Castle Bromwich. In the hired halls at Olympia and Earls Court substantial expenditure was incurred annually on labour and new installations which had later to be discarded. Alternative sites had therefore been examined, and the most suitable was the Crystal Palace. The report is published by the Stationery Office (Cmd. 9013, price 6d.).

AWARDS TO APPRENTICES

Exhibition Competitions

SIR FREDERICK LEGGETT, chairman of the Building Apprenticeship Training Council, was at the building exhibition, Olympia, on Tuesday (December 1) to distribute prizes among successful students in the craft competitions which have been held there during the exhibition.

The competitions were divided into two grades—final and intermediate. In the final grade the winners were (1st) Tottenham Technical College; (2nd) Northern Polytechnic. Intermediate grade winners were (1st) East Ham Technical College; (2nd) South East Essex Technical College. In all, 12 apprentices received prizes.

Sir Frederick Leggett said that the competitions had provided a further impetus to the great cause of apprenticeship. He hoped similar competitions would be held at future building exhibitions to encourage more apprentices into the industry.

PERSONAL COLUMN

MR. J. R. KELLY, who joined the board of Vickers-Armstrongs, Ltd., on December 1, at the same time became a director of the following companies in the Vickers group: Powers-Samas Accounting Machines, Ltd.; G. J. Worssam & Son, Ltd.; and A.B.C. Motors, Ltd.

Fidor, Ltd., announce that owing to the resignation of MR. T. B. DODSON from the vice-chairmanship of the Building Board Manufacturers' Association, MR. CEDRIC FORD, director and secretary of the Sundeala Board Co., Ltd., has been appointed in his stead.

The Builder

CURRENT PRICES OF MATERIALS

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intenton that the details given should indicate fair average prices of materials not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchant's warehouse will necessarily be higher so as to include the stocking and handling costs involved. Due to the exceptional circumstances now prevailing it is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

		£	s.	d.
Pit Ballast	per yd.	1	1	5
Pit Sand	„	1	0	5
Washed Sand	„	1	2	3
¾ in. Shingle	„		18	11
¾ in. Broken Brick	„		19	3
Pan Breeze	„		9	6
Fine or Coarse Foamed Slag Aggregate ... 2 yds. of fine and 2.6 yds. of coarse per ton	per ton	2	18	1

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

		£	s.	d.
Best British Portland Cement. Standard Specification delivered Charing Cross area. 6-ton loads and upwards, site	„	4	15	0
1 to 6 tons, site	„	5	4	0
Ferrocrete Rapid Hardening Cement in 6-ton loads and upwards to site	„	5	3	0
1 to 6 ton do. site	„	5	12	0
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices				
Red, Buff or Khaki Colorcrete in 6-ton lots	„	6	16	6
Other colours according to colour				
In 4-ton lots from 210s. 3d. to 434s. 3d. per ton.				
White Portland Cement	„	12	15	3
Under 1 ton	per cwt.		15	6
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards	per ton	6	7	6
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.				
Cullamix Tyrolean Finish, £9 2s. 9d. to £10 16s. 3d. (1-ton loads and upwards).				
Lightning and Ciment Fondu Brands High Aluminous cement, 6-ton lots and up	„	14	0	9
Stourbridge Fireclay, 6-ton loads at Railway Depot, London	„	5	15	0

BRICKS

Full Loads

		£	s.	d.
First Hard Stocks	per 1,000	11	0	6
Second Hard Stocks	„	10	4	6
Mild Stocks	„	8	13	6
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.				
2½ in. Nominal Fletton Bricks to sites in W.C. District Commons	„	5	10	0
Cellular do.	„	5	10	0
Keyed do.	„	5	12	0
Rustics	„	6	15	0
Cellular Rustics	„	6	15	0
Single Bullnose do.	„	6	10	0
Sandfaced	„	7	10	0
Cortex Facing Bricks	„	6	5	0
Best Blue Pressed Staffs (London Stations)	„	23	17	6
Do. Bullnose (London Stations)	„	24	11	6
Blue Wire Cuts (London Stations)	„	21	10	6
Midhurst Lime Bricks (London Sites)	„	9	18	0
Uxbridge Whites (London Sites)	„	8	16	6
2½ in. Best Stourbridge Fire Bricks (London Stations)	„	22	3	0
3 in. do. (London Stations)	„	26	11	6
2½ in. Machine-made Sandfaced Red Facings (London Sites)	„	13	9	6
2½ in. Machine-made Multi Red Facings (London Sites)	„	13	14	6
2½ in. Hand-made Sandfaced Red Facings (London Sites)	„	14	3	6
2½ in. Hand-made Sandfaced Multi-Colour Facings (London Sites)	„	14	3	6
2½ in. Surrey Clamp Burnt Multi Stock Facings (London Sites)	„	13	2	0
2½ in. Surrey Kiln Burnt Multi Stock Facings (London Sites)	per 1,000	13	18	0

Glazed Bricks (London sites), White, Ivory, Brown—		£	s.	d.
Stretchers	„	64	0	0
Headers	„	63	0	0
Quoins, Bullnose and 4½ in. Flats	„	80	0	0
Double Stretchers	„	85	0	0
Double Headers	„	77	10	0
One side and two ends	„	87	0	0
Two sides and one end	„	89	10	0
Splays and Squints	„	83	0	0

Second quality — 10% Bests. Cream and Buff £3 extra over White. Other colours, hard glaze. £8 10s. 0d. extra over White.

PARTITION SLABS, etc.

Delivered Central London Area.

HOLLOW CLAY PARTITION BLOCKS (Keyed)

	Minimum lorry loads.		£	s.	d.
2 in.	140 yds.	per yd. sup.		4	3
2½ in.	140 yds.	„		4	6
3 in.	120 yds.	„		5	0
4 in. (6 cavity)	95 yds.	„		6	7

Half blocks at no extra charge.

CLINKER CONCRETE.

2 in.	100 yds.	„		3	6
2½ in.	85 yds.	„		4	1
3 in.	75 yds.	„		4	10
4 in.	55 yds.	„		6	0

CRANHAM

2 in.		„		6	5
2½ in.		„		7	1
3 in.		„		8	3
4 in.		„		10	2
4½ in. Load bearing quality		„		11	2

FLOOR BLOCKS

3 in. Floor Blocks 12 in. by 12 in. delivered in full lorry-loads		per 1,000	31	10	0
4 in. do.		„	34	13	0
5 in. do.		„	39	7	0
6 in. do.		„	46	16	0
7 in. do.		„	54	1	0
8 in. do.		„	61	15	0

STONEWARE DRAIN PIPES, etc.

The following are the percentages to be added to the Standard List prices delivered London Area.

	Over 2 tons	Over 100 Pieces under 2 tons	Under 100 Pieces under 2 tons
Best Quality	+67½%	+97½%	+107½%
B.S.S. Best do.	+10% +67½%	+10% +97½%	+10% +107½%
Tested Quality	+37½% +67½%	+37½% +97½%	+37½% +107½%
B.S.S. Tested do.	+47½% +67½%	+47½% +97½%	+47½% +107½%

		£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths)	per 1,000	9	19	0
4 in. do.	„	13	1	0
6 in. do.	„	27	1	0

STONE

		£	s.	d.
Bath Stone— Monks Park	per ft. cube		6	8
St. Aldheim Box Ground	„		7	8
Delivered in railway trucks at South Lambeth B.R. Western Region				
Doulting Stone Random Blocks. Delivered London area	„		7	5
Beer Stone. Delivered London area	„		7	0
Portland Stone— Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region	„		7	5
Hopton-Wood Stone— F.O.R. Quarries, Wirksworth, Derbyshire— ¾ in. Slabs for wall lining, sawn two sides in random sizes up to 5 ft. and not over 15 ft. super in area	per ft. sup.		6	2
1½ in. Slabs for paving, sawn two sides as above described	„		8	6
Yorkshire Stone—Blue Robin Hood Quality. Delivered to site London in 6-ton lots. 9 in. × 3 in. Rubbed, weathered, throated and stooled cills	per ft. cube	3	1	9
12 in. × 6 in. do. do.	„	2	4	3
12 in. × 3 in. Plain coping, twice throated	„	1	14	0
12 in. × 3 in. Weathered and twice throated coping	„	2	5	6
14 in. × 6 in. do. do.	„	2	1	0
4½ in. × 9 in. Plinth, rubbed on top and face	„	1	16	9
3 in. sawn two sides Slabs, random sizes	per ft. sup.		6	6

STONE—*continued*

		£ s. d.
Templates and Cover Stones, 3 in., 4 in, and 6 in. thick, edges coped for rendered brickwork ...	per ft. cube	1 2 6
Do. do. fair one edge for fair faced brickwork		1 6 9
Hard York—		
12 in. × 2 in. Square Steps, rubbed on top and edge	per ft. run	7 10
14 in. × 3 in. Round-nosed Steps, rubbed on top and front	per ft. cube	2 2 0
12 in. × 6 in. Plain Steps, rubbed top and front ...	„	1 16 9
2 in. Rubbed and Jointed Paving, given sizes ...	per ft. sup.	7 6
2 in. Sawn Paving, edges squared, in random sizes	per yd. sup.	2 11 9

TILES and PANTILES

Delivered London area by road in 6 tons or over per 1,000

									£ s. d.
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	...	...	...	...	...				28 18 6
Hand-made Pantiles Berkshire district	...	...	...						41 18 6
Hand-made Double Roman Bridgwater district									56 17 6
Hand-made 10½ × 6½ tiles Berkshire district	...	...							12 15 6
Machine-made 10½ × 6½ Staffordshire district	...	...							13 5 0
Hand-made Hip and Valley tiles per doz.									1 8 6
Machine-made Hip and Valley tiles do.		...	...						1 6 3
Concrete tiles 10½ × 6½			...	...	...				6 18 6
do. Interlocking (49S)			...	...	...				18 9 6

NOTE.—Breakage in transit, purchasers' responsibility

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

										£ s. d.
24 × 12	...	...	...	...	...	...	...	...		100 16 9
22 × 12	...	...	...	...	...	...	...	...		86 6 6
22 × 11	...	...	...	...	...	...	...	...		78 0 6
20 × 12	...	...	...	...	...	...	...	...		73 3 3
20 × 10	...	...	...	...	...	...	...	...		68 10 9
18 × 10	...	...	...	...	...	...	...	...		50 17 0
18 × 9	...	...	...	...	...	...	...	...		43 15 0
16 × 10	...	...	...	...	...	...	...	...		42 18 3
16 × 8	...	...	...	...	...	...	...	...		33 13 3

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

				£ s. d.
Softwood—				
Joinery quality	Ex. Wharf	per standard		£105 to £125
Carcassing quality	do.	„		£90 to £100
1 in. Tongued and Grooved Flooring	do.	„		£106 0 0
Hardwood—				
Mahogany— African S.E. ...	do.	per ft. cube		1 5 0
do. Honduras do. ...	do.	„		2 15 0
Oak European do. ...	do.	„		1 17 6
do. Japanese do. ...	do.	„		1 15 0
do. English Logs sawn	do.	„		1 5 0
Teak 8 in. average S.E.	do.	„		3 0 0
Walnut African Logs sawn	do.	„		1 1 0

DOORS (in Lots I-11)

Delivered London area.

		£ s. d.
1¾ in. 4 Horizontal Panel. Pattern 4 in. deal		
2 ft. 0 in. × 6 ft. 6 in.	each	1 12 0
2 ft. 3 in. × 6 ft. 6 in.	„	1 13 0
2 ft. 6 in. × 6 ft. 6 in.	„	1 14 6
2 ft. 9 in. × 6 ft. 6 in.	„	1 16 9
2 in. do., but top panel open. Pattern 4 × G in deal		
2 ft. 6 in. × 6 ft. 6 in.	„	2 10 6
2 ft. 9 in. × 6 ft. 6 in.	„	2 13 6
2 in. Panel, top panel open. Pattern 2 × G in deal		
2 ft. 6 in. × 6 ft. 6 in.	„	2 3 9
2 ft. 9 in. × 6 ft. 6 in.	„	2 6 6

SUNDRIES

Delivered London area

		£ s. d.
1 in. Wood Wool Slabs, 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton) ...	per yd.	5 8
1½ in. do. (67 yds. to 1 ton)	„	7 4
2 in. do. (52 yds. to 1 ton)	„	8 11½
2½ in. do. (45 yds. to 1 ton)	„	10 3
3 in. do. (39 yds. to 1 ton)	„	11 5½
Quantities under 1 ton add 1d. per ½ in. of thickness.		
½ in. imported Insulation Board, quantities over 5,000 sq. ft.	per 100 sq. ft.	2 2 6
¼ in. Hardboard do.	„	2 3 6
⅛ in. do. do.	„	3 2 6
¼ in. Asbestos Flat Building Sheets	per yd. sup.	2 11
Roofing Felt, 1-ply	„	1 6
do. 2-ply	„	1 9
Best Scotch Glue, in slabs	per ½ cwt.	5 0 0
do. pearl	„	5 5 0
Croid Glue	28 lb.	2 5 0
Cut Nails, 3 in. (1-ton lots)	per ton	54 5 0
do. 4 in. and up (1-ton lots)	„	50 15 0
Wire Nails, 3 in. (4-cwt. lots)	per cwt.	2 15 9
do. 4 in. and up (4-cwt. lots)	„	2 12 3

METALS — STEEL JOISTS, ETC.

		£ s. d.
Basis Joists—		
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in. 12 in. × 6 in. plain cut to lengths delivered London area	per ton	37 2 6
Extra for sizes		
3 in. × 1½ in.	„	3 10 0
3 in. × 3 in., 4 in. × 3 in., 5 in. × 2½ in. ...	„	1 5 0
4 in. × 1¾ in.	„	3 0 0
4½ in. × 1¾ in., 24 in. × 7½ in.	„	2 0 0
5 in. × 3 in., 22 in. × 7 in.	„	1 0 0
6 in. × 3 in.	per ton	1 10 0
9 in. × 7 in.	„	5 0
10 in. × 4½ in., 12 in. × 5 in.	„	15 0
5 in. × 4½ in., 6 in. × 4½ in., 7 in. × 3½ in., 7 in. × 4 in., 8 in. × 4 in., 9 in. × 4 in., 10 in. × 5 in., 10 in. × 8 in., 12 in. × 8 in., 13 in. × 5 in., 14 in. × 5½ in., 14 in. × 6 in., 14 in. × 8 in., 15 in. × 5 in., 15 in. × 6 in., 16 in. × 6 in., 16 in. × 8 in., 18 in. × 6 in., 18 in. × 7 in., 18 in. × 8 in., 20 in. × 6½ in., 20 in. × 7½ in.	„	10 0
Steel angles average price	„	38 7 6
Steel tees average price	„	39 7 6
Fabricated work delivered London—		
R.S. Joists cut and fitted	„	51 15 0
Compound girders	„	57 0 0
Stanchions	„	62 0 0
Compound stanchions	„	65 0 0
In Roof Work—Trusses and Purlins	„	77 0 0
Average prices not for awkward work.		
Mild Steel Ferro-Concrete bars to BSS785 ex London		
Stock ⅜ in. diam., and upwards	„	37 1 6
⅜ in. diam.	... per ton extra	3 12 0
⅞ in. do.	„	2 17 0
½ in. do.	„	2 2 0
⅜ in. do.	„	1 7 0

MILD STEEL TUBES

Tubes to BSS1387 and Fittings. List prices and following discounts :

Galvanised Tube—		W.I. Fittings	Malleable Fittings
Class A — 41%			
Class B + 4½%		Light +20½%	Malleable List — 39½%+35%
Class C + 20¾%		Heavy +27¾%	
Black—			
Class A — 23½%			
Class B — 13½%		Light + 8½%	Malleable List — 39½%
Class C — 1¾%		Heavy + 16%	

C.I. HALF-ROUND GUTTERS

Delivered London per yd. in 6-ft. lengths

	Gutters	Nozzles	Stop Ends
3 in.	3/1	2/9	/10
3½ in.	3/4½	3/-	/10
4 in.	4/4	3/4	1/2
4½ in.	4/9	3/8	1/5
5 in.	5/4	4/1	1/7

C.I.O.G. GUTTERS

3 in.	4/-	3/7	/11
3½ in.	4/5½	3/7	1/2
4 in.	4/10½	3/8	1/6
4½ in.	5/4	4/4	1/8
5 in.	5/9½	4/11	1/11

C.I. RAIN-WATER PIPES

Per yd. in 6-ft. lengths	Pipe	Bends	Branches
2 in.	6/4	3/4	4/9
2½ in.	6/7	3/8	6/7
3 in.	7/5	4/8	7/1
3½ in.	8/4½	5/7	8/5
4 in.	9/8½	6/9	9/11

L.C.C. COATED SOIL PIPES

2 in.	7/5½	5/9	7/-
2½ in.	7/10½	6/4	8/8
3 in.	8/10	7/-	10/5
3½ in.	9/11	8/8	12/1
4 in.	11/3½	9/9	14/3

Above prices for gutters rain-water and soil pipes for under 3 cwt. lot only. Lots over 3 cwt. see List No. 3200 dated May 1, 1952, plus 7½% and tonnage allowance. 4-ton lots 5 per cent. 2-ton lots 2½ per cent.

L.C.C. COATED DRAIN PIPES

In 9-fts.

	cwt. qr. lb.	per yd.	Bends	Branches
4 in.	1 1 17	20/1	13/10	24/5
6 in.	2 0 1	29 10	28/10	49/11

ASBESTOS RAIN-WATER PIPES AND FITTINGS

Orders under £30 less 12½ per cent. discount.
Orders over £30 less 17½ per cent. discount.

		2 in.	2½ in.	3 in.	4 in.
Pipes 6/ft. lengths	per yd.	3/6	3/9	4/6	6/-
Shoes ...	each	2/3	2/6	3/-	4/-
Single Branches ...	„	3/6	4/3	5/-	7/-
Bends square or obtuse	„	2/6	2/9	3/6	5/-
Swan Necks 4½ in. proj.	„	2/9	3/6	4/-	5/6
do. 6 in. do.	„	3/-	3/6	4/6	6/-

ASBESTOS O.G. GUTTERS AND FITTINGS

		4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths	per yd.	3/3	3/7	4/3	5/2
Drop ends ...	each	2/3	2/4	2/7	3/3
Stop Ends... ...	„	/9	/10	/11	1/1
Angles and nozzles	„	2/8	3/1	3/7	4/3
Union Clips ...	„	1/4	1/7	1/11	2/3

ASBESTOS HALF-ROUND GUTTERS AND FITTINGS

		3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths	per yd.	2/4	2/9	2/10	3/4	4/8
Drop ends ...	each	2/-	2/3	2/6	2/9	4/-
Stop ends ...	„	/8	/9	/10	/11	1/1
Angles	„	2/3	2/6	2/9	3/-	4/-
Nozzles	„	2/-	2/3	2/6	2/9	4/-
Union Clips ...	„	/11	1/-	1/1	1/3	1/10

METALS—*Continued.*

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	39 10 0
Mild Steel Bars	37 8 0
Mild Steel Hoops	38 3 0

	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft sheets C.R. and C.A.—	
20 gauge	45 12 6
24 gauge	46 17 6
26 gauge	48 17 6
Galvanised Corrugated sheets 6 ft. to 9 ft.—	
20 gauge	52 17 0
24 gauge	54 17 0
26 gauge	57 12 0
Galvanised Flat sheets C.R. and C.A.—	
20 gauge	53 17 0
24 gauge	55 17 0
26 gauge	58 12 0

Metal Windows.—Standard Metal Windows, B.S. 940. Prices on application British Metal Window Manufacturers' Association, Ltd.

PLUMBERS' BRASS WORK, COPPER, ZINC, ETC.

Delivered in London area.

All per doz.	M.O.H. ½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron	70/-	104/-				
Toilet bib cocks for iron	90/-	129/-				
Screw down stop cocks for iron	60/-	87/-	171/-	294/-	420/-	741/-
do. with two unions for lead	81/-	120/-	213/-	381/-	504/-	1122/-
Double nut boiler screws	15/-	21/-	38/-	39/-	54/-	76/-
Heavy Croydon ball valves	62/-	141/-	216/-	394/-	558/-	
Plumbers' union brass lead to iron	15/9	19/-	31/6	55/-	67/9	132/-
	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and screws	27/-	33/-	48/-	75/-	96/-	125/-
Brass sleeves		25/-	25/-	45/-	60/-	61/-
	1½ × 6 lb.		1½ × 6 lb.	2 × 7 lb.		3 × 7 lb.
Lead P. trap with brass cleaning screws	60/-		75/-	120/-		205/-
Lead S. trap do.	72/6		90/-	147/6		265/-

Solder	s. d.
Plumbers'	per lb. 3 0
Tinmen's	„ 3 7
Blow pipe	„ 3 9

Copper tubes BSS 659/1944 on the basic price of 27½d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 3 cwt.

	Extra d.	Total per lb. d.
¼ in. × 19 gauge	11¾	38¾
⅜ in. × 19 „	10¾	37¾
1 in. × 18 „	8¾	35¾
1¼ in. × 18 „	8¾	35¾
1½ in. × 18 „	8¾	35¾
2 in. × 17 „	9¾	36¾

		£ s. d.
Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras	per ton	292 10 0
Sheet Zinc, 10 gauge, 5 cwt. lots upwards	per cwt.	6 13 0
do. 12 gauge do.	„	6 11 0
Brass tubes basic price, plus gauge and manufacturing extras	per lb.	1 10½

LEAD SHEET AND PIPES

Basis selling price in minimum one-ton delivery to one address in London or Home Counties.

		£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	128 10 0
Lead Water Pipe in coils	„	129 15 0
Lead Soil Pipe, 10 ft. or over 2 in. to 4 in. dia.	„	131 5 0
do. over 4 in. dia.	„	133 5 0
Lead Gas or Untinned Compo pipe	„	131 5 0
Extras over Basis for quantities under 1 ton		
5 cwt. and under 1 ton	per cwt.	2 0
3 cwt. do. 5 cwt.	„	4 0
1 cwt. do. 3 cwt.	„	6 0

Smaller quantities than 1 cwt. priced specially.

Supplying sheet lead and lead pipe to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.

Allowance for Old Lead, collected £83 15s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

		£ s. d.
Coarse Pink in 1-ton loads and over Delivered on Site	per ton	7 3 3
do. White do. do.	„	7 11 0
Sirapite Coarse do. do.	„	7 6 3
do. Fine do. do.	„	7 14 3
Blue Lias Lime in 6 ton loads	„	6 5 0
Hydrated Lime do.	„	5 9 0
Lump Lime do.	„	4 18 6
White Keen's or Parian Cement in 1-ton loads	„	10 0 9
Pink Keen's or Parian Cement in 1-ton loads	„	9 15 6
Granite Chips in 6-ton loads	„	2 6 3
Hair	per cwt.	4 17 6
Gypsum Plaster Lath or Base Board ½ in. thick 600 yds. and over in one delivery. Delivered site	per yd.	2 3
Gypsum Plaster Wall Boards, 3 and 4 ft. wide, 6 to 12 ft., ½ in. thick, 600 yds. and over in one delivery Delivered site	„	2 6

PAINT AND DISTEMPER

Delivered London area		£ s. d.
Ceiling Distemper	per cwt.	1 12 0
Washable Distemper	„	5 12 0
Gloss Paint	per gal.	2 15 0
Snowcem cement paint (in 1 cwt. drums)	per cwt.	3 11 0
LEAD PRODUCTS AND OILS.		
Ground White Lead 5 cwt. casks	per cwt.	7 15 0
1 cwt. kegs	„	8 2 0
Genuine White Lead Paint, 20 gal. lots in 1 gal. tins	per gal.	2 18 0
Genuine Red Lead, Dry, 1 cwt. keg	per cwt.	6 12 0
Genuine Linseed Oil Putty, 1 cwt. keg	„	2 9 0
Size XD quality, 28 lb.	per tin	9 0
Raw Linseed Oil (5 gal.) Drums extra	per gal.	14 6
Boiled Linseed Oil (5 gal.) do.	„	14 11
SUNDRIES		
Turpentine substitute (5 gal.) Drums extra	„	5 6½
do. do. (40 gal. drum) do.	„	4 9
Solignum, Brown (5 gal. cans), Exterior	„	6 6
Creosote (40 gal. barrels)	„	2 0
Paste Powder (1 lb. packets)	per lb.	1 6
White Lining Paper	per piece	1 4

VARNISHES, etc.

Delivered London area.		£ s. d.
Oak Varnish, Outside or Inside	per gal.	1 12 6
Oak Pale Copal do.	„	1 15 0
Hard Drying Oak for Inside	„	1 17 6
Crystal Paper Varnish do.	„	1 15 0
Eggshell Flat Varnish do.	„	2 2 6
Finest Carriage Varnish	„	2 10 0
Front Door Varnish	„	1 17 6
Japan Gold Size	„	1 10 0
Black Japan	„	1 5 0
Brunswick Black	„	1 0 0
Berlin Black	„	1 5 0
Terebene	„	1 5 0
Knotting (1 gal. bottles free)	„	2 0 0
French and Brush Polish (do.)	„	1 13 0

GLASS

Delivered London area.

	Per ft. super s. d.
18 oz. Sheet Glass, Ordinary Glazing Quality. Cut Sizes	5½
24 oz. „ „ „ „ „ „ „	7½
26 oz. „ „ „ „ „ „ „	9½
32 oz. „ „ „ „ „ „ „	1 0
¼ in. Rolled Plate	9
⅛ in. and ¼ in. Rough Cast	1 0
⅛ in. Figured Rolled and Cathedral, Standard patterns : White	9
do. Standard Tints	1 4½
do. Special Tints	2 9
⅛ in. Cross Flexon, Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating	1 1
¼ in. Wired Cast	1 2
¼ in. Georgian Wired Cast	1 2½

Hollow Glass Blocks—	Each
P.B.2 5¾ × 5¾ × 3¾ in.	2 9
P.B.3 7¾ × 7¾ × 3¾ in.	4 2
P.B.32 7¾ × 7¾ × 3¾ in.	4 2
Radiused Corner Blocks to match up with—	
P.B.2	5 3
P.B.3	6 9
P.B.32	6 9

¼ in. Polished Plate Glass, G.G. Quality—	Per ft. super
In plates not exceeding 2 ft. sup.	3 7
„ „ „ „ 5 ft. sup.	4 5
„ „ „ „ 45 ft. sup.	5 1
„ „ „ „ 100 ft. sup.	5 6

¼ in. Polished Plate, extra sizes, *i.e.*, plates exceeding 100 ft. sup. or 96 in. high or 160 in. wide. G.G. quality—

Not exceeding 135 ft. sup. or 250 in. one way or 135 in. both ways	8 4
Not exceeding 180 ft. sup., or ditto	11 3
Not exceeding 200 ft. sup., or ditto.	16 0

Plates exceeding 200 ft. sup., prices on application

Substances other than ¼ in. Polished Plate at Special Prices

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass	Minimum quantity.	Per ft. super. s. d.
18 oz. sheet O.Q.	3,000	4
24 oz. „ „	2,000	5½
26 oz. „ „	2,000	7½
32 oz. „ „	2,000	9½
¼ in. Rolled Plate	1,000	7½
⅛ in. Figured Rolled and Cathedral Standard Patterns, White	1,000	7½
⅛ in. Cross Flexon, Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte	1,000	10½
⅛ in. and ¼ in. Rolled Plate or Rough Cast	2,000	10½
¼ in. Wired Cast, Hexagonal	2,000	1 0½
¼ in. Georgian Wired Cast	2,000	1 0½

The Builder

CURRENT RATES OF WAGES

AS FROM FEBRUARY 2, 1953. (Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)

KEY TO SCHEDULE OF GRADE RATES.

Grade Classification.	A	A1	A2	A3
Craftsmen	3/6½	3/6	3/5½	3/5
Labourers	3/1	3/0½	3/0	2/11½

Town.	Grade.
Aberavon	A
Aberdare	A
Abergavenny	A
Abingdon	A2
Accrington	A
Addlestone	A
Aldeburgh	A2
Aldershot District	A2
Alfreton U.D.	A
Alnwick	A1
Altrincham	A
Amble	A1
Amersham	A1
Ammanford	A
Andover	A2
Ardingly	A2
Arundel	A2
Ascot	A2
Ashby-de-la-Zouch U.D.	A
Ashby Woulds U.D.	A
Ashford (Kent)	A2
Ashford (Middlesex)	A
Ashington	A
Ashtead	A
Ashton-under-Lyne	A
Aspatria and Brayton	A2
Atherstone R.D. (parts of)	A
Aylesbury	A2
Aylesby (Yorks)	A
Aylesham	A2
Bagshot	A2
Bakewell U.D.	A2
Banbury	A2
Barnard Castle U.D.	A
Barnoldswick U.D.	A1
Barnsley	A
Barrow-in-Furness	A
Barrow-upon-Soar R.D. (exc. Thrussington A2)	A
Barry	A
Basford R.D. (exc. Willough-by-on-the-Wolds A2)	A
Basingstoke	A1
Bath	A
Batley	A
Baxterley	A1
Beaconsfield & District	A1
Beamish	A
Bearl	A
Bearpark	A
Beccles	A2
Bedale R.D.	A
Bedford	A
Bedlington	A
Bedwas	A
Beeston & Stapleford U.D.	A
Belper U.D.	A
Belton	A
Berkhamsted	A
Berrington	A1
Berwick District	A
Beverley	A
Bexhill-on-Sea	A2
Biggleswade	A2
Billericay	A
Billing	A
Billingham U.D.	A
Bilsthorpe	A
Birchington	A2
Birkenhead	*
Birmingham C.B.	†A
Bishop Auckland	A
Bishop's Stortford	A
Bispham	A
Blackburn	A
Blackpool	A
Blackwell R.D.	A
Blaydon U.D.	A
Blidworth	A
Blyth	A
Bognor Regis	A2
Boldon U.D.	A
Bolsover U.D.	A
Bolton	A
Bourne End	A1
Bournemouth District	A
Bracknell	A2
Bradford	A
Bradford-on-Avon	A2
Braintree	A1
Breconshire, County of...	‡A2
Brent Knoll	A2
Brentwood	A
Bridlington	A
Brierfield	A
Brighouse	A
Brighton	A
Bristol	A
Broadstairs	A2
Bromsgrove U.D.	A
Brough	A
Broughton (Cheshire)	A
Buckley	A
Bungay	A2
Burnham-on-Crouch	A2
Burnley	A
Burton-on-Trent C.B.	A
Bury	A
Bury St. Edmunds	A1
Buxton	A
Byfleet	A1
Calder Valley	A
Cambridge	A
Cannock U.D.	A
Canterbury	A2
Cardiff	A
Cardiganshire, County of	‡A2
Carlisle	A
Carmarthenshire, Cnty of	‡A2
Carnarvonshire, Cnty. of	‡A3
Carnforth	A
Castleford	A
Caterham	A
Chapel-en-le-Frith	A
Charmy Down	A
Chatham & District	A1
Cheadle (Staffs) R.D.	A
Chelmsford	A
Cheltenham	A
Chepstow	A1
Chertsey	A
Chester	A
Chesterfield M.B.	A
Chesterfield R.D.	A
Chester-le-Street U.D.	A
Chichester	A2
Chippenham (inc. Chippen-ham Within and Harden-huish	A2
Chorley	A
Clacton	A1
Cleethorpes	A
Clevedon	A1
Cleveleys	A
Clitheroe	A
Coalville U.D.	A
Cobham (Surrey)	A
Colchester	A
Colne	A
Colwyn Bay	A1
Congleton	A1
Consett	A
Conway	A1
Cornwall, County of	‡A2
Coventry C.B.	A
Cranbrook	A2
Cranleigh	A2
Crawley (Sussex)	A2
Crewe	A
Cromer	A1
Crowborough	A2
Cuckfield	A2
Dalton-in-Furness	A
Darlington District	A
Darwen	A
Deal	A2
Denbigh Town	A2
Derby C.B.	A
Devizes	A2
Devon, County of	‡A2
Dewsbury	A
Didcot	A2
Diss	A2
Doncaster C.B.	A
Dorking	A
Dorset, County of (except-ing Poole, Swanage and Wimborne A1)	A2
Dover	A2
Dovercourt	A
Driffield U.D.	A1
Droitwich M.B.	A1
Dudley M.B.	A
Dunstable	A
Durham City	A
Eastbourne	A1
E. Glam. & Mon. Val.	A
East Grinstead District	A2
Eastwood (Notts.) U.D.	A
Ebbw Vale & District	A
Edenbridge	A2
Ely	A2
Epping	A
Exeter	A
Fakenham	A2
Falmouth	A2
Fareham	A
Faversham	A2
Felixstowe	A1
Filey U.D.	A
Fleetwood	A
Flint	A
Folkestone	A2
Frinton	A1
Frome	A1
Gainsborough U.D.	A
Gateshead	A
Gillingham (Kent)	A1
Glossop	A
Gloucester	A
Gloucestershire, Cnty. of	‡A2
Godalming	A2
Goole M.B.	A
Gosport	A
Grantham M.B.	A
Gravesend	A
Great Yarmouth	A
Grimsby C.B. & R.D. (part)	A
Grimsby R.D. (remainder)	A2
Guildford District	A2
Guilsborough	A1
Guiseley	A
Halesowen M.B.	A
Halifax	A
Halstead	A2
Haresfield	A1
Harlow	A
Harpenden	A
Harrogate	A
Hartlepool	A
Harwich	A
Haslemere	A2
Hastings	A2
Hatfield (Herts.)	A
Haywards Heath	A2
Hemel Hempstead	A
Henley-on-Thames	A2
Hereford	A2
Herefordshire, Cnty. of	‡A2
Herne Bay	A2
Hertford	A
Hexham U.D.	A
Heysham	A
High Wycombe	A1
Highworth	A2
Hinckley U.D.	A
Hitchin	A
Hoddesdon	A
Horley	A2
Horsham	A2
Horwich	A
Huddersfield	A
Hull	A
Hunstanton	A2
Huntingdon (Staffs)	A
Ilkley	A
Ingatestone	A1
Ipswich	A
Isle of Sheppey	A2
Isle of Thanet	A2
Isle of Wight	A2
Jarrow M.B.	A
Keighley	A
Kendal	A
Kenilworth U.D.	A
Kettering M.B.	A
Keynsham	A
Kidderminster M.B.	A
King's Lynn	A1
Kingskerswell	A1
Kingsteignton	A1
Kirkham	A
Knaresborough U.D.	A
Knowle	A1
Lancaster	A
Leamington M. B.	A
Leatherhead	A
Leeds	A
Leicester C.B.	A
Leighton Buzzard	A1
Letchworth	A1
Lewes	A2
Lichfield M.B.	A
Lincoln C.B.	A
Littlehampton	A2
Liverpool	*
Llandudno	A1
Llanelly	A
London	*
Long Eaton	A
Loughborough M.B.	A
Louth M.B.	§A1
Lowestoft	A
Loxton	A2
Luton	A
Lyneham (Devon)	A2
Macclesfield	A
Maidenhead	A1
Maidstone	A1
Maltby	A
Maldon (Essex)	A1
Malvern U.D.	A1
Manchester	A
Manningtree	A1
Mansfield M.B.	A
March	A2
Margate	A2
Market Harborough U.D.	A
Maryport	A
Matlock U.D.	A1
Melksham	A2
Melton Constable	A2
Melton Mowbray U.D.	A1
Merthyr	A
Middlesbrough	A
Middleton	A
Middlewich	A
Milford Haven	A1
Morecambe	A
Morley	A
Mundesley	A2
Nantwich	A
Nelson	A
Newark-on-Trent R.D.	A1
Newbury	A2
Newcastle-on-Tyne	A
Newcastle-under-Lyme	A
New Forest District	A1
Newmarket	A1
Newport, Mon.	A
Newport Pagnell	A2
Newton Abbot	A1
Northallerton Dist.	A
Northampton C.B.	A
North Shields	A
Norton Radstock	A1
Norwich	A
Nottingham C.B.	A
Nuneaton M.B.	A
Oakham U.D.	A2
Oldham	A
Ongar	A
Ormskirk	A
Ossett and Horbury	A
Oxford	A
Oxted	A1
Paignton	A1
Peterborough	A
,, Soke	A1
Pickering	A3
Plymouth	A
Pontefract	A
Pontypridd District	A
Portishead	A
Portland Stoneyards	A
Portsmouth	A
Port Talbot	A
Preston	A
Pudsey	A
Pulborough	A2
Radnorshire, County of	‡A2
Ramsgate	A2
Rayleigh	A
Reading	A
Redcar B.	A
Redditch U.D.	A
Redhill and Reigate	A
Ripon	A3
Rochdale	A
Rochester	A1
Rotherham	A
Rugby M.B.	A
Saffron Walden	A2
St. Albans	A
St. Helens	A
St. Neots	A2
Salisbury City	A2
Salisbury Plain	A2
Sawbridgeworth	A
Saxmundham	A2
Scarborough	A
Scunthorpe	A
Selby	A
Sevenoaks	A1
Sheerness	A2
Sheffield	A
Shipley	A
Shoeburyness	A
Shoreham	A
Shrewsbury M.B.	A
Sittingbourne	A2
Skegness U.D.	A1
Skipton U.D.	A
Sleaford U.D.	A2
Slough	A1
Smethwick C.B.	†A
Snettisham	A2
Somerset, County of	‡A2
Southampton	A
Southend-on-Sea Dist.	A
Southport	A
South Shields C.B.	A
Spalding U.D.	A2
Stafford M.B.	A
Staines	A
Stamford M.B.	A1
Stantonwick	A
Stevenage	A
Stockport	A
Stockton R.D.	A
Stockton-on-Tees	A
Stoke-on-Trent C.B.	A
Stoke Orchard	A1
Stourbridge M.B.	A
Stourport U.D.	A
Stowmarket	A1
Stratford-on-Avon M.B.	§A
Sunderland District	A
Sunningdale	A1
Sutton Coldfield M.B.	A
Swaffham	A2
Swanage	A1
Swansea	A
Swindon	A1
Swinton U.D.	A
Tamworth M.B.	A
Tenterden	A2
Tewkesbury	A1
Thames Haven	A
Thetford	A2
Thorpe Bay	A
Thurrock U.D.C. Area	A
,, North of, to Billericay	A
Tilbury	A
Todmorden	A
Tonbridge	A1
Torquay	A1
Totnes	A1
Trowbridge	A2
Tunbridge Wells	A1
Tynemouth C.B.	A
Uppingham (Salop)	A1
Uttoxeter U.D.	A2
Wakefield	A
Wallsend B.	A
Walsall C.B.	A
Walsden	A
Walton-on-Naze	A1
Ware	A
Warminster	A2
Warrington	A
Warwick M.B.	A
Wellington U.D.	A
Wells (Norfolk)	A2
Welwyn	A
Welwyn Gar. City	A
West Bromwich C.B.	A
Westbury	A2
Westcliff-on-Sea	A
Westerham	A1
Weston-super-Mare	A1
Weybridge	A
Weymouth	A1
Whitby U.D.	A1
Whitstable and District	A2
Wickford	A
Widnes	A
Wigan	A
Wigton	A2
Willington	A
Wilmslow	A
Wilts. County of	‡A2
Winchester	A1
Windermere	A3
Windsor and Eton	A1
Wisbech	A2
Witham	A1
Woking (District)	A1
Wokingham	A2
Wolverhampton C.B.	A
Woodbridge	A2
Worcester C.B.	A
Workington	A
Worksop M.B.	A
Worthing	A2
Wrexham (incl. Cefn)	A
Wroughton	A1
Wylam	A
Wymondham	A2
York	A

* **For Birkenhead, Liverpool and London the rates are:**—Craftsmen, 3s. 8d.; Labourers, 3s. 2½d. In the case of London the rate beyond the 12-mile radius is:—Craftsmen, 3s. 7½d. Labourers, 3s. 2d. † Plus 2d. per working day. ‡ This is the County rate and applies except where higher grades are stated. § Regraded as from October 5, 1953.

NOTE.—Carpenters, Joiners and Plumbers in all towns and districts receive 2d. per day Tool Allowances.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged in craft processes is 2s. 7d. per hour. Women introduced to carry out work other than craft processes, 2s. 3d. per hour.

For Building Trade Wages in Scotland see page 902

IN PARLIAMENT

Licensing Limits Raised

ON November 30 SIR DAVID ECCLES, Minister of Works, made the following statement about the building licensing arrangements for 1954:

The free-limits in force were £2,000 for industrial and agricultural work and £500 for all other work including housing. The Government wish to stimulate investment in productive enterprise. The free-limit for industry and agriculture will therefore be raised for the year 1954 to £25,000. The free-limit for all other work will be raised to £1,000. Secondly, a further degree of freedom will be given to the private house builder which will enable him, without detriment to the local authorities' programmes, to play an increasing part in the provision of houses for general needs.

From January 1, 1954, local authorities will give licences automatically for houses up to 1,500 square feet in size and for not more than 50 houses at a time. They will also have discretionary powers to issue licences for houses up to 2,500 square feet. Proposals for houses in excess of that area will be referred to the Minister of Housing and Local Government. Applications to build more than 50 houses at one time will be referred by the local authority, with their recommendation, to the Regional Office of the Ministry of Housing for consideration in consultation with my Ministry since building plans of this size may affect the programme to be carried out in an area wider than that of the local authority immediately concerned.

The Secretary of State for Scotland has asked me to say that these arrangements for private house-building will also apply to Scotland.

Thirdly, as a further step towards simplifying licensing procedure, from January 1 next applications for building licences for all classes of buildings except housing should be sent to the Regional Licensing Office of the Ministry of Works. If in any area the load on the building industry appears likely to become excessive, my Regional Officers will operate the starting date procedure and thus preserve a balance between building work in the private and public sectors of the economy.

MR. BEVAN asked whether it would be possible to raise the superficial area automatically to 1,500 square feet for certain houses and to give local authorities power to issue licences up to 2,500 square feet without at the same time taking labour from other forms of building. Was he making preparations to increase the overall building force so that all these operations could go on simultaneously?

SIR DAVID ECCLES replied that the Government had studied the question and considered that there was ample labour to meet this increase in freedom. There was at the moment an increasing capacity for the building industry and this particular practice would make only a small demand on it.

MR. BOWLES asked whether the shortage of bricks in the Midlands would hold up the new programme.—SIR DAVID ECCLES said he thought that the coming increase in bricks would be sufficient.

MR. WOODBURN asked whether the Board of Trade would enforce restrictions on building in industrial estates, or whether this permission would be extended to industrial estates in the new towns, so that they could go ahead with factory building.—SIR DAVID ECCLES replied in the affirmative. He said that the sponsoring arrangements whereby the building owner who wanted to put up a factory went to the Board of Trade and Ministry of Supply would cease. Only in cases where the area was in danger of severe overload would the Ministry of Works apply to the Board of Trade or Ministry of Supply to know if the building was of vital importance.

MR. KING asked whether there would be any interference with the Ministry of Housing permits for building and rebuilding in "blitzed" towns.—SIR DAVID ECCLES said he did not think that raising the industrial limit to £25,000 would make much difference. They had refused no licences since last April.

SIR RICHARD ACLAND asked if building conditions were imposed on local authorities whether the same conditions would be imposed on private builders.—SIR DAVID ECCLES replied that private people usually built more quickly and cheaply. With timber off the ration many of these restrictions had ended.

MR. FOOT asked if the allocation of licences for "blitzed" cities was to be transferred from the Ministry of Housing to the Ministry of Works, and if that meant that local authorities would be deprived of the right to decide which projects should go ahead in their own areas.—SIR DAVID ECCLES replied that the amount of work done in the "blitzed" cities would be in addition to the building resources in a particular city. Under the system the Minister of Housing would be able to sponsor considerably more work than he had this year.

Repairs and Rents Bill

THE second reading of the Housing Repairs and Rents Bill was moved in the House of Commons on Monday. At the close of the debate on Tuesday the Bill was referred to a Committee for report.

Introducing the Bill, MR. MARPLES, Parliamentary Secretary, Ministry of Housing and Local Government, pointed out that repair work now cost three times the 1939 figure. The Government's object was to ensure that houses were continuously kept in good repair by allowing an increase of rent, provided it was used for repairs. A landlord must prove that repairs had been done according to specified amounts. The Government wished to be fair as between tenants living in the same area and even in the same street, although paying different rents for approximately the same accommodation. That was not easy to achieve, and the Government had tried to fix an upper limit beyond which rents could not rise. The annual rent could not be raised beyond an amount greater than twice the gross value of the house.

The object of that part of the Bill dealing with the conversion and improvement of houses so as to make them suitable for use, he said, was to modernise the premises. The Bill would make more flexible the provisions of the Housing Act, 1949, which was passed by the Labour Government.

The conditions of the grant had been too rigid. The Act of 1949 allowed £800 as the maximum expenditure to attract a grant, amounting to £400, but if a man spent £810 he was not entitled to anything at all. The position in future would be more flexible. Also, the Act of 1949 restricted the grant to dwellings with an expected life of 30 years, but in future local authorities could make grants where the expectation of life was shorter. He appealed to local authorities to do all they could to encourage improvements and conversions. They could set examples by themselves acquiring houses and converting them into small units; and, knowing the property in their districts suitable for conversion, they could invite owners to submit proposals and even help them to frame their plans.

Coming to slum clearance, Mr. Marples said the first category of unfit houses were those scheduled for early clearance. No one knew how many there were, but it would be a very big task. The National Council of Housing and Town Planning had suggested that hopelessly unfit houses numbered about a million, and no one would dare to call that an overstatement. The next class of houses came within the category of "eventual but necessarily deferred slum clearance." Here the thing to do was to patch. The local authority would have to raise two separate loans. The first would be for the purchase of the house, and the second for its repair. As the site value was outside the control of the local authority, the Exchequer would make a grant of 50 per cent. of the annual cost of the interest and of funding the loan. The expenditure on the repair of the house would be within the control of the local authority, and here the Exchequer were making a fixed grant of £2 5s. per house for 15 years. This figure was necessarily an estimate, and power would be taken to vary it in the light of experience. Anyone doubtful of the policy of patching should visit Birmingham, where the authorities had already done what was contemplated, and the tenants were delighted.

By increasing the flow of materials the Government had been able to get higher productivity. Before introducing the Bill the Government had taken care to free the materials which the repair industry required —softwood. Builders could now buy what softwood they liked, and of what quality they liked. Conversion was also of the greatest importance. Early in 1954 the public and local authorities would be able to inspect conversion work carried out by the Government. Slum clearance provided a unique opportunity for trying out new methods which might lower the costs of building.

"The greatest problem of all is the high cost of building," continued Mr. Marples. "The building industry need not fear working itself out of a job, but they might price themselves out of a job if prices rise much higher."

Could not building profit by the experience of other industries? The shipbuilding industry was closely analagous to house-building. There, design and construction were combined in one team. They were all part of one organisation, and not dispersed. The designer was compelled to keep in mind the cost of production, so he designed for that method of production which gave as many simple and repetitive operations as possible. The Government were having talks with the profession and the industry to see whether design and construction could not be moved together in a new form of organisation as a team. If such an experiment failed there was no harm done; if it succeeded, a considerable distance might have been traversed towards solving the difficulty of high costs.

MR. ANEURIN BEVAN said that there were 4,809,000 families without fixed baths, 1,008,000 sharing baths, 1,028,000 without

water closets, 1,679,000 sharing water closets, and 711,000 even sharing a cooking stove. With a tragic situation of that sort there was something wrong with the order of values of a Government that they had to rehabilitate slums and at the same time permit local authorities to issue building licences to private individuals up to 2,500 square feet. That was the order of the humbug behind the Bill. The Minister of Works believed there was some curious alchemy about private enterprise and that somehow resources never known before would make their appearance. Apparently there existed somewhere a great pool of labour which began to gush forth immediately the rock of private enterprise was struck. If labour was to be provided for new forms of housing it could only be at the expense of other forms of housing, or by an addition to building productivity. The Minister of Housing had to steer a middle-of-the-road course and everyone who did that got run down. That was what was happening now because the Minister had produced a formula which would get certain houses repaired but not those which were in a very bad state of disrepair. The Government were running away from the main task, which was to prevent the deterioration of millions of houses subject to legislative control. They had dodged it. They had produced the maximum of demagogy with the minimum of physical incentives. If the Minister wished to be just, the onus of proving that a rent increase should be made was placed on the landlord. When he had actually spent the money to justify his obtaining the statutory increase he should be obliged to obtain a certificate from the sanitary inspector before the increase was made. It could then be shown to the tenant. If it was politically unpalatable to take this property out of control and expose it to the ordinary laws of supply and demand, then Parliament should take the bold and intelligent step of taking it into public ownership.

The Opposition had never suggested that when houses were kept in a good state of repair there was no justification for increasing rents. When houses were reasonably comfortable with modern conveniences tenants were ready to pay reasonable increases. The nation was in grave danger, unless it was careful, of being stupidly extravagant. If these houses were in the local authorities' renting pools and voluntary transfers were brought about, a great deal of the additional new building would not be required at all. If the Bill went to Committee the Opposition would do their best to make it a respectable affair.

In the debate which followed, Conservative members supported the Bill as the best means that could be devised for getting the houses, while Labour members severely criticised it. MISS BACON, one of the Labour members for Leeds, argued that the Bill ought to have contained provisions to give greater financial assistance to the large industrial areas where a great deal of slum clearance would have to be done in the next few years.

MR. BLENKINSOP urged that the financial provisions of the Bill should be entirely recast.

MR. GIBSON complained that the Bill did nothing for the four million owner-occupiers and little for the local authorities who were to take over all the slums and dilapidated property.

Bill Sent to Committee

THE DEBATE was continued on December 1. SIR DAVID ECCLES, the Minister of Works, said that in the housing drive the Minister of Housing had called on all sections public and private. He intended to follow the same policy in the next stage. He would mobilize local authorities, housing associations, development corporations, building societies, industry and private enterprise, private owners and big and small builders. The more agencies and persons brought in, the less money the taxpayer and rent payer would have to find. In that way the work would be done more quickly and more effectively. The Opposition wanted a profit, but to do that they would either have to buy at below a fair price, or put the rents up afterwards. Which did the Opposition intend? They might say they would take over the houses piecemeal, but it was clear they would like to take over the best ones first. What then would happen to the worst? Under the Bill the worst houses would be taken over by the local authority, and the landlords of those not taken over would be helped immediately to repair their houses. The Government's way was better.

The building industry had acquired a forward momentum. At constant prices the progress was £1,400m. for 1951, £1,440m. for 1952 and, at a conservative estimate, £1,560m. for 1953. In the last year there had been a small addition to the labour force of about 15,000, but a much greater increase in productivity, as could be seen by the very large advance in the use of building materials. Techniques were improving and it was important that the new traditional methods should go on. Organization on the site was most important and that was steadily improving. More machines were going into use. The price of building materials was coming down and output this year would be about eight per cent. above last year. There was no reason why that should not be repeated next year.

A year hence there would be some levelling off in programmes. An estimate of that uncommitted capacity put it to the order of £150m. to £200m. Industry must have first call and anyone who wished to build or extend a factory would be encouraged to do so. Building for nationalized industry and development programmes such as schools would be controlled by the money available and would be maintained at a high level. The Government were licensing a number of large buildings in London and other cities and in areas where there were sufficient resources, churches, shops, and places of entertainment. Slum clearance was an almost limitless problem. It would cost hundreds of millions of pounds and for that reason it could be so managed that it would underpin manpower in the building industry for years to come. If the industry took the view there was no need to bother about costs or new methods or restrictive practices, they would have succumbed to the occupational disease of full employment. If they concluded that they had never had that kind of security and accepted the matter as a challenge to hold nothing back in their effort they would succeed.

MR. DE FREITAS said that the Opposition intended to put some good into the Bill on the Committee stage. The building industry was a classic example of the inefficiency of private enterprise. He wished it would try new and unconventional methods and become efficient like the aircraft industry and other industries.

MR. HERBERT MORRISON criticised the financial provisions of the Bill. He hoped that the Government would not move the financial resolution because there was to be a meeting between the Minister and the local authority associations in London on December 10 to discuss these matters.

He was not convinced of the wisdom of local authorities acquiring and patching up the slums. If it were physically possible to clear the slums out of existence at a reasonably early date—even at some years ahead—it would be preferable to patching them up for a period of time which might turn out to be longer than was expected.

MR. H. MACMILLAN, Minister of Housing and Local Government, agreed that it would have been easier to have devised a simpler scheme, but it would not have been fair in respect of the principles, the increases in rent, or the safeguards. He thought the tenants would not object to paying this modest increase so long as the repairs were done. It had been said the repair increases would be subject to income tax, but that was in line with tax policy in general. The landlord could and should make a maintenance claim, and in that claim he had the advantage that he was able to average out his expenditure over the five years, so that a heavy expenditure in one year could be spread over the income of five years. He also had the automatic statutory reductions for tax purposes. He (the Minister) would consult the Chancellor of the Exchequer to see if it was necessary or possible to devise additional means for meeting the part.

He promised not to proceed with the financial resolution until after he had met the local authorities on December 10, and added that in the second year of this administration, up to October 31, 1953, 301,000 houses had been built.

The Bill was read a second time by 309 votes to 282—Government majority 27.

The Bill will now go to a Standing Committee of the House.

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HOUSING PROGRESS REPORT

Figures for October

THE HOUSING SUMMARY presented to Parliament as a White Paper* jointly by the Minister of Housing and Local Government and the Secretary of State for Scotland, shows that the number of permanent houses completed in Great Britain during October was 30,031 compared with 23,291 in October, 1952.

In the first ten months of 1953, 255,894 permanent houses were completed compared with 194,384 in the same period of 1952.

Canadian Timber

A new monthly publication entitled "Western Woods" is being produced by the British Columbia Coast Woods Trade Extension Bureau of Vancouver, and is designed to further the knowledge and use of British Columbia's woods. Copies may be obtained from Canada House, SW1.

*Cmd. 9015 Housing Summary, October 31, 1953. HMSO, price 2d.

OVERSEAS BUILDING

[From Our Own Correspondents]

British Honduras.—Two grants totalling $ BH 60,000 (£15,000) are to be provided from UK Colonial Development and Welfare funds. One-third of the sum is to be spent on items of capital equipment to assist in the construction of forest roads, and the remainder on roads, kerbs and waterpipes for the extension of the Cinderella township in Belize, the capital of the Colony.

India.—The Technical Committee of the International Low Cost Housing Exhibition to be held in New Delhi, India, in January, has selected 45 designs out of those received so far for putting up full-scale models. The approved participants have already begun construction of the houses at the sites allotted to them in the exhibition grounds. The land for the models section has been fully developed. The designs cater for different climatic conditions adopting various types of specifications and methods of construction technique. The exhibition authorities have made arrangements for 72 plots for model houses as against the original provision of 50. It appears that the plots might still fall short of the demand for up to date 82 applicants have applied for space. The authorities intend to make every possible effort to accommodate as many applicants as possible. Among the participants who will be building houses will be various State Governments, Central Government agencies such as the Railways, Central Public Works Departments, research institutes, co-operative societies, private firms and individuals. Some of the organisations have been holding competitions among their members in order to display their best model houses at the exhibition. In response to the competition for designs for low-cost houses more than 170 designs have been received for three different regions—namely, hot and dry, hot and humid, and hot and wet. They will shortly be judged by the assessors, Mr. Walter George, New Delhi architect, and Mr. B. S. Puri, former Chief Engineer of the Central Public Works Department, for selecting the three best designs. Model houses based on the winning designs will be erected at the exhibition. Soon after the assessors have given their verdict, the authorities propose to organise an exhibition of all the drawings.

Nyasaland.—The interim Federal Cabinet has recently signified its agreement to the proposal that Nyasaland be allowed to incur expenditure in advance of raising a loan on the following Federal projects:—(a) Group Hospital, Blantyre; (b) Improvements to Lilongwe/Salima Road, eastern section; (c) Mlange/Portuguese Border road; (d) European Primary School; (e) Terminal Building, Chileka; (f) Salima Airport and Terminal Buildings. It is estimated that the total cost of the above schemes will be in the neighbourhood of £2½m., £750,000 of which will be for the Group Hospital project.

Housing Loans in New Zealand

The New Zealand Government's mortgage guarantee scheme, which applies to loans for the building of new houses, will aim at giving maximum freedom of action to private lending institutions, and so save much administrative work by the State Advances Corporation. The Minister in Charge of the State Advances Corporation, the Hon. J. R. Marshall, said that the Government would guarantee a proportion of the amount advanced by approved private lending institutions. This will enable private lending institutions, in the case of new dwellings, to advance up to 90 per cent. of the approved valuation of the property, instead of two-thirds, as is the general practice at present. Mr. Marshall said that the maximum mortgage on which the guarantee will be available is £2,000, excluding any suspensory loan.

Exports of Bridging Equipment

Orders for civil Bailey bridging equipment valued at almost £200,000 were received by Thos. Storey (Engineers), Ltd., Vernon Works, Stockport, during October. The Storey company holds world licences, under the British Government, for the manufacture and sale of Bailey components.

One of the largest single orders was for approximately £50,000 worth of bridging equipment for use in the Philippines, and was obtained through the agency of Cathay Overseas, Ltd. Morrison Knudson International, constructional engineers, have placed through the Cheshire Engineering Co., Ltd., a "large order" for Bailey equipment, which is to be used to provide an access roadway to the Seyhan Dam hydro-electric scheme in Turkey. A flush-deck type Bailey bridge, 240 ft. long, is to be built with a roadway width of 30 ft. The bridge will normally provide two-way traffic for Euclid trucks, with 40-ton loads, and also allows for the passage of a 90-ton Lima shovel. The bridge will be of triple-single Bailey construction.

Other orders, obtained through Engineering and Industrial Exports, Ltd., are valued at almost £100,000, and will go to Pakistan, Iraq, Nigeria, Canada, France, Uganda and Spain.

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BRITISH ROADS

The Need for Rebuilding

THE urgent need for improvements in the road surfaces of this country was emphasised by MR. A. J. LENNOX-BOYD, MP, Minister of Transport and Civil Aviation. He was proposing the toast of "The Reinforced Concrete Association" at the dinner and dance held by them to mark the 21st anniversary of their formation. The function took place on December 1, at the Dorchester Hotel, London.

Mr. Lennox-Boyd went on to point out that a large number of roads needed rebuilding, including many trunk and classified roads. Concrete would play a big part in this resurfacing, and he hoped the Association would keep this in mind.

In a response to the toast, MR. H. G. COUSINS, BSc, MICE, president of the Association, spoke of the indication of the use of concrete given by the increase in reinforcement work, which in 1952 was 50 per cent. above that of the peak period of 1938. The emphasis of their work was turning more and more to making improvements in concrete technology. The qualities of concrete made it eminently suitable to the needs of progressive architecture. It was the product of a scientific age and should be used wisely and well.

A toast to "The Guests" was proposed by Mr. C. H. S. Howkins, OBE, TD. A response was made by Mr. C. H. Aslin, CBE, FRIBA, vice-president of the Royal Institute of British Architects, and also by Sir Richard Coppock, CBE.

TRADE NEWS

Change of Address

The Well Fire and Foundry Co., Ltd., moved on Monday, November 30, to works at Royal Victor Place, Old Ford-road, London, E3 (Tel.: Advance 2642). The firm has been at its previous address in Berners-street, W1, for 40 years.

Tractor-Mounted Shovels

Mackay Industrial Equipment, Ltd., of Feltham, Middlesex, have recently imported a consignment of Allis-Chalmers H.D.5.G. Tracto-Shovels. Users of this type of plant will recall that Mackay pioneered the hydraulic tractor-mounted shovel in this country after the war.

On The Level

We have been asked by Hilger and Watts, Ltd., 48, Addington-square, SE5, makers of the Cowley Level, to point out that although the Cowley Level is entirely adequate for most purposes, it is not claimed that it will replace the Dumpy Level for all work. It is understood to have an accuracy better than ¼ in. in 100 ft., and is entirely automatic.

Tractor-Mounted Excavator

At this year's Smithfield Show, which is being held at Earl's Court, London, from December 7 to 11, Whitlock Bros., Ltd., Great Yeldham, Essex, will be showing their "Dinkum Digger" trench excavator tractor-mounted machine. Exhibited on Fordson Major and Ferguson tractors it is said to be capable of digging trenches from 10 inches to 30 inches wide with a maximum depth of 8 feet, and of loading the soil direct into lorries. It is capable of dealing with deep trenches for sewers, cables, water and gas mains, irrigation schemes, also land drainage, loading manure and sugar beet, back filling into trenches, digging post holes, grave digging and work on housing estates.

The SCOTTISH BUILDER

Scottish Architecture

SCOTLAND was "just not on the world architectural map," declared PROFESSOR ROBERT H. MATTHEW, ARIBA, of the Chair of Architecture, Edinburgh University, speaking at a "Design Appreciation" conference in Edinburgh.

"I do not know many buildings built in Scotland in the last 40 years," he remarked, "that have aroused any flicker of interest abroad. Yet our students go, year by year, eagerly studying the work of innumerable architects in a score of countries, only to return home with a sense of frustration at the lack of opportunity."

We had found it convenient to blame our Scottish weather for almost everything, but it was not a question of the weather. Norway and Sweden had more than Scotland's share of cold, damp, fog and mist. They had even shorter summers, but this had not prevented both these countries making a very considerable contribution to the development of contemporary architecture, which, so far, Scotland had not done. Some of the most attractive buildings in the world to-day were being erected in Denmark and Switzerland.

"I believe," continued Professor Matthew, "that in Scotland to-day, and I am sorry to say it, for we have much to be proud of in many other ways, most people appear to go about with their eyes shut, apparently indifferent to their environment unless it is positively falling about their ears; and seemingly unaware that it might, with advantage, be judged by any other standards than those of barest utility."

If we really faced up to it, one of the reasons why we had hidden our buildings behind façades of sham antiquity was simply a form of fear; fear of the unfamiliar, perhaps, but even more fear and distrust of our own civilisation.

"And so in self-defence we have had a long dose of pin-up architecture used either as a pathetic screen of historical respectability to hide the disturbing facts of life to-day, or even more subconsciously following ancient tribal superstition, as a magic ancestral cloak, by which the values of another age might be transferred to our own—presumably to our advantage."

This strange practice had almost, but not quite, come to an end. In Edinburgh to-day one could still see new buildings that were revivals of revivals, and public opinion had a long way to go. "If you visit the architectural schools almost anywhere in the country," commented Professor Matthew, "you will not see anything of this kind being done by the students. But, until the man in the street is moved to raise his voice in loud protest, you will see, for some time, these ghostly skeletons from the past rising in our midst."

Although Scotland had comparatively few contemporary buildings to show the world, she had, in no small measure, a healthy vernacular architecture; if only we would notice and appreciate it and learn from it the basic values of design!

For a couple of centuries the designing skills of the engineer and the architect had been separated. But now the real tradition of building had been picked up after a long lapse. The new expression of architecture was rooted in that tradition. But equally it was now linked with the skill of the engineer.

It might be that in time the artificial distinction between engineering and architecture would again disappear. And by that time the new universal might have become firmly established—even in Scotland.

Modern Building Practice

THE ABSENCE of money to spend on buildings in Scotland was discussed in relation to Scottish architecture by MR. LESLIE GRAHAM-MACDOUGALL, president of the Royal Incorporation of Architects in Scotland, when he opened a modern building practice exhibition in Glasgow recently.

"Scottish architecture is often unfavourably compared with Scandinavian architecture," he said, "and we all know what marvellous modern architecture Sweden has produced. But though I do not want to say anything against our Swedish friends I want to point out that they have escaped two world wars. In their polity and economy they have had the money to do something with. Even if we in Scotland had the money put out on the South Bank of the Thames two years ago we would have done something with it."

Many new structures were needed in Scotland, but requests for them were not getting enthusiastic replies from Ministers of the Crown. New towns like Glenrothes, while being developed on the mining side, were not getting the factories for letting which would provide work for girls and for young men who did not want to take up mining as an occupation. The construction of the Forth Road Bridge was the key to the progress of Glenrothes and all the country to the north.

On the use of stone in building, Mr. Graham-MacDougall said that co-operation from the source of supply was not always forthcoming to the extent that architects and builders would like. "I know," he continued, "that quarrymasters are anxious that stone should be used, but time is money these days, and deliveries are not always made up to time and in the quantities wanted. Quarries must produce the stone in quantity, quality and in time."

MR. WINSTONE WASTIE, assistant secretary to the Ministry of Works in Scotland, who also spoke at the opening of the exhibition, which had been arranged by the Scottish Building Centre, in association with the Ministry, said that the very large building programme that existed at present would call for all the resources of the building and building material industries. Everyone would have to take advantage of modern methods, machinery, and all possible means to complete this programme with a labour force that was not likely to increase.

SCOTTISH BUILDING TRADE WAGES

FOLLOWING are rates of wages authorised by the Scottish National Joint Council as from February 2, 1953. They apply to the whole of Scotland, including the islands of Orkney, Shetland, etc.

Grade A: Craftsmen, 3s. 6½d.; Labourers, 3s. 1d.

For apprentices, the rates are:

Year.	Percentage of Craftsman's rate.	For week of 44 hours. s. d.
1st	25	38 11½
2nd	33½	51 11½
3rd	50	77 11
4th	66½	103 10½
5th	75	116 10½

For female labour, the rates are:

	s. d.
Operatives on craft operations (at end of probationary period)	3 1
Operatives on labouring operations (at end of probationary period)	2 9½

East Lothian Inquiry

THE SECRETARY OF STATE has appointed Mr. H. A. Shewan, OBE, QC, to hold a public local inquiry into the objections which have been lodged against the proposals contained in the County of East Lothian development plan.

The inquiry will be held in the County buildings, Haddington, and will open on January 25 next at 10.30 a.m.

House Building at Meadowfield

THE SECRETARY OF STATE has decided not to approve the proposals of Edinburgh Corporation for building houses at Meadowfield on the lower slopes of Arthur's Seat. He is willing to approve modified proposals confined to a smaller area in the eastern, or lower, part of the site, and has laid down conditions to be observed in designing the layout. The main conditions are that building will be confined generally to the part of the site below the 200-ft. contour, that the height of the buildings will be controlled, and that the maximum density is not to exceed 75 persons per acre.

The effect of the Secretary of State's decision is that any house-building operations which the Corporation may carry out at Meadowfield will be confined to an area of land at the lowest part of the site. This will meet the amenity objections in great measure without preventing the Corporation from filling in the gaps in the existing housing development to the east.

NEW BUILDINGS

Blantyre.—Plans to be prepared for new library buildings to be erected at Calder-st., for which the architect is William Watt (F), County Offices, Albert-st., Motherwell-Wishaw.

Cullen.—Corporation to erect a scheme of houses at The Cathay housing site, their architect being George Legg, Municipal Offices, Cullen.

Edinburgh.—Warrant granted by Dean of Guild Court to Smith Potato Crisps, Ltd., for the erection of a depot on Sightill Industrial estate. The depot will be of reinforced concrete and is est. to cost £18,000.

Edinburgh.—Plans prepared and approved for an extension, est. at £12,000, which is to be erected at

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Jane-st., Leith. The architects are the staff of Proser & Co., Ltd., Iron Foundry, Leith.

Falkirk.—Corporation has plans prepared and approved for 16 houses to be erected at Thornhall House, Stirlingshire, for which their architect is A. C. M. Carrell (A), Municipal Offices, Falkirk.

Fifeshire.—Plans prepared and approved by the County Finance Committee for extension to the Templehall public school. The County Architect is Robert S. Lawrie (A), County-bldgs., St. Catherine's-st., Cupar.

Fifeshire.—Plans have been approved for a new Catholic high school, for which the architect is Robert S. Lawrie (A), County-bldgs., St. Catherine's-st., Cupar.

Glasgow.—Plans prepared for the Scottish Dance Halls, Ltd., for alterations and additions at the Locarno Ballrooms, Sauchiehall-st., for which the architects are Wylie, Shanks & Wylie (F&A), 120, Claremont-gdns., Clifton-st., Charing Cross, Glasgow.

Glasgow.—Plans in hand for Buchanan Scott & Co., Ltd., North-st., for alterations and additions at Dundas-st. The architects are Honeyman, Jack and Robertson (F&A), 92, Bath-st., Glasgow.

Glasgow.—Plans in hand for new garage to be erected at Drumoyne-rd. by Wilson's Terrazzo Manufacturing Co., Ltd., 202, Drumoyne-rd., Langlands-Govan, Glasgow.

Glasgow.—Plans in hand for new building for the Acme Tea Chest Co., Ltd. The architect is Thomas S. Cordiner (A), Blythswood-chbrs., 261, West George-st., Glasgow.

Greenock.—Plans to be prepared for new library to be erected at Burns-sq., Auchmead, or other site, for which the architect is Robert L. Rankine, Master of Works Offices, Municipal-bldgs., Hamilton-st., Greenock.

Greenock.—Plans in hand for improvements at Madeira-st., for Scott's Shipbuilders and Engineers, Ltd., for which the architects are Crawford & Neil (A), Cathcart-st., Greenock.

Lanarkshire.—Plans to be prepared for George S. MacAulay, Ltd., for new business buildings at Five Ways-rd., Netherburn. The architects are Cullen, Lochhead & Brown (F), 119, Cadzow-st., Hamilton.

Lanarkshire.—Plans in hand for new commercial garage and service station to be erected for John Ramage & Co., Ltd., at Raplock-st., Larkhall. The architects are White & Barrie (F), 38, High-st., Lanark.

Lanarkshire.—Plans in hand for new houses to be erected at West Mains, for which the architect is S. W. Barnage, 44, Union-st., Stonehouse.

Netherdale.—Banffshire CC to have plans prepared for a new public school. The architect is William R. Wark (A), County-bldgs., Cullen.

Salsburch.—Lanarkshire CC having plans prepared for new police station and houses which are to be erected on the Glasgow and Edinburgh road. The architect is William Watt (F), County Offices, Albert-st., Motherwell-Wishaw.

Whitehills.—Banffshire CC to have plans prepared for a new public school. The architect is William R. Wark (A), County-bldgs., Cullen.

The Builder

FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

DECEMBER 5.

***†Sunbury-on-Thames UDC.**—40 houses, 6 bungalows, 5 garages and ancillary works at housing site no. 14, Chertsey-rd., Ashford Common. E&S. Dep. £2 2s. Tenders by January 19.

DECEMBER 7.

***†Isle of Ely CC.**—Pair of police houses at Quaker-la., Wisbech. County A, March. Dep. £2 2s. Tenders by January 4.

DECEMBER 8.

***†Enfield UDC.**—66 houses and 72 flats, Hoe-la. North estate (Part 2). E&S, 7, Little Park-gdns. Dep. £2 2s. Tenders by Jan. 4.

***†Enfield UDC.**—12 flats, Foxhall site, Baker-st. E&S, 7, Little Park-gdns. Dep. £2 2s. Tenders by Jan. 4.

***†Northumberland CC.**—11 houses for County Fire Brigade at Alnwick. County A.

DECEMBER 9.

***†Leeds Reg. Hosp. Board.**—Alterations at Hull Royal Infirmary. A to Board, Park-par., Harrogate. Dep. £2 2s. Tenders by January 11.

***†Twickenham BC.**—Six flats and 5 shops with store, Hampton-rd., Butts Farm estate, Feltham. BE. Dep. £3 3s. Tenders by January 6.

DECEMBER 10.

***†Beds EC.**—New gymnasium, Bedford College of Physical Education, Warwick-ave., Bedford. County A, Bedford.

***†Beds EC.**—Various work at three voluntary primary schools. County A, Bedford.

***†Dorset CC.**—First stage of Bridport grammar-modern school. C of the CC.

DECEMBER 11.

***†Birmingham City C.**—Two houses, Portland-rd., Edgbaston. City E&S. Dep. £2 2s. Tenders by January 14.

***†Ilford BC.**—List of contractors for building work in connection with various schools. BE.

***†Southampton CBC.**—New offices, Foundry-la. junior girls' school. Boro' A. Dep. £1. Tenders by January 12.

DECEMBER 12.

***†Essex CC.**—Hostels for elderly persons at "Coupals," Sturmer, near Halstead, and "The Grove," Dedham, near Colchester. County A, Chelmsford.

***†Essex CC.**—Extensions to Health Area Office at Rayleigh and at Grays. County A, Chelmsford.

DECEMBER 14.

***†Barking TC.**—First section of Municipal Offices and Town Hall. TC, Town Hall.

***†Eastbourne CBC.**—Six houses at St. Philip's-ave.; 52 houses, section J1, and 50 houses, section 13, at Langney Village estate; 21 flats at Langney-rd. BS. Dep. £2 2s. each proposal.

DECEMBER 15.

***†Tettenhall UDC.**—Shops, maisonettes, garages, etc., School-rd. E&S. Dep. £3 3s.

DECEMBER 16.

***†Cambridgeshire CC.**—First instalment of Cambridgeshire Tech. College extension. Charles Phythian, C. Shire Hall.

***Hants Police Authority.**—Police house, Barton-on-Sea, near Lymington. Dep. £1 1s.

***†Leeds Regional Hosp. Board.**—Adaptations at Cardigan Hospital, Carr Gate, Wakefield. A to Board, Park-parade, Harrogate. Dep. £2 2s. Tenders by Jan. 6.

***†Norfolk EC.**—Adaptation of "Eden Hall," Bacton, and erection of two classrooms. F. Lincoln Ralphs, Chief Ed. Officer, Norwich.

DECEMBER 17.

Liverpool City C.—83 dwellings at Mitylene-st. City A and Director of Housing. Dep. £2 2s.

DECEMBER 18.

Canterbury City C.—32 old people's dwellings at Spring-la. housing estate. City A. Dep. £2 2s.

***†Durham CC.**—Additional accommodation at 10 various schools. County A, Durham.

***†Durham CC.**—Metal windows, bituminous roofing, steelwork, Billingham North (Roseberry-rd.) County school. County A, Durham.

***†Durham CC.**—Heating installations at two schools, Billingham and Windleston Hall. County A, Durham.

***†Durham CC.**—New school Billingham North and adaptations, Windleston Hall special residential school. County A, Durham.

***†Eastbourne CBC.**—Primary school, Langley Village housing estate. BS, 2/4, Saffrons-rd. Dep. £2 2s. Tenders by Jan. 29.

***East Riding of Yorks CC.**—New classrooms, etc., at Hornsea, Norton and Langton county primary schools. County A, Beverley. Dep. £2 each school.

Hartismere RDC.—Six houses at Kenton. H. Spindler, housing officer, Housing Department, Lambseth-st., Eye. Dep. £2 2s.

***†Wednesfield UDC.**—Eight shops and flats, Lichfield-rd. housing estate. T. A. Peacock, E&S, 29, Bolton-rd. Dep. £3 3s.

DECEMBER 19.

***†Denbighshire EC.**—Schools at Abergele and at Cefn Mawr. G. D. Wiles, County A, Wrexham. Dep. £5 5s. each. Tenders by Jan. 11.

***Ware UDC.**—24 houses and 22 bungalows, Cromwell-rd. estate. E&S. The Priory. Dep. £2 2s. each.

DECEMBER 21.

***Gt. Yarmouth CBC.**—62 flats and maisonettes at Middlegate-st., No. 1 reconstruction area (phase 5). BE.

***Maidstone BC.**—Alterations and additions to BS's dept., Palace-ave. BS.

Padstow UDC.—Eight houses at Loderieck-ave., Vyvyan Salisbury, architect, 88, Molesworth-st., Wadebridge. Dep. £1 1s.

Rochdale CB.—Erection of public conveniences at Cronkeyshaw. BS, Town Hall.

Walsingham RDC.—40 dwellings at Mount Pleasant Estate, in five sections of one, four, six, 12 and 17 dwellings. F. Dewing, architect, 40, Prince of Wales-rd., Norwich. Dep. £1 1s. per section.

***Woking UDC.**—42 houses, Barnsbury Farm estate. E&S. Dep. £2 2s.

DECEMBER 23.

***Manchester City C.**—269 houses on Langley Estate, Middleton. Director of Housing. Dep. £3 3s.

***†Wandsworth MBC.**—51 flats, 48 houses and 10 dwellings for elderly people. TC.

DECEMBER 28.

***Basingstoke BC.**—12 single persons dwellings. Boro' A. Dep. £2 2s.

JANUARY 1.

Brecknock RDC.—16 houses and ancillary works on the Maesyfelin housing site, Llangorse. J. Merton Jones, architect, St. Mary's-chbrs., Abergavenny. Dep. £3 3s.

JANUARY 2.

***North Riding EC.**—Junior school, Thornaby, near Middlesbrough. H. Lidbetter (F), architect, 2, Verulam-bldgs., Gray's Inn, WC1.

Faringdon RDC.—26 flats on Pitts estate. Council's S. Dep. £2 2s.

***Wirksworth UDC.**—Eight bungalows for old people and 12 houses. S. Dep. £2 2s.

JANUARY 4.

***Staines UDC.**—Contract No. 1, 12 dwellings, and contract no. 2, 42 dwellings on Convent Estate, Ashford. E&S. Dep. £2 2s. per contract.

***Warrington CBC.**—High school for girls at Loushers-la. BS. Dep. £5 5s.

Wing RDC.—42 dwellings at Wingrave; 20 at Edlesborough, and six at Cublington. H. Rolls, architect, 15, Bridge-st., Leighton Buzzard. Dep. £2 2s.

JANUARY 5.

***East Riding of Yorks CC.**—Two classrooms with sanitary accommodation at North Ferriby CE school. County A, Beverley. Dep. £2.

JANUARY 7.

***Harwich BC.**—12 flats at Cliff-rd., Dovercourt. Boro' A. Dep. £2 2s.

JANUARY 11.

***Bournemouth CBC.**—Adaptation work at Stour field school and at East Howe boys' and girls' schools, also school building, etc., at Winton and Moordown school. Boro' A. Dep. £2 2s. each.

***Seaton UDC.**—23 houses at Elizabeth-rd. A. Lamb, ARIBA, 2, Prospect-pl., Ottery St. Mary, Devon. Dep. £3 3s.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

DECEMBER 8.

***†Southampton CBC.**—Memorial gateway and flank walls at St. Mary Extra Cemetery. Boro' A. Dep. £1. Tenders by December 29.

DECEMBER 10.

***†Beds EC.**—Electric lighting and heating, etc., at new secondary modern school, Sandy. County A, Bedford.

DECEMBER 12.

***†Lindsey CC.**—Heavy canteen equipment for school meals service. County A, Lincoln.

DECEMBER 18.

Wolverhampton CB.—BE. (Materials.)

DECEMBER 19.

***†Denbighshire EC.**—Heating and water installations at new schools at Abergele and Cefn Mawr. County A, Wrexham. Dep. £3 3s. each. Tenders by Jan. 11.

***†Denbighshire EC.**—Electrical installation works at new schools at Abergele and Cefn Mawr. County A, Wrexham. Dep. £3 3s. each. Tenders by Jan. 11.

DECEMBER 21.

***Dover BC.**—Replacement of stoves and installa-

BOOKS FOR BUILDERS

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Huddersfield CBC.—WE. (Pipes and castings.)

Maidenhead BC.—Materials. (BE&S.)

***Southampton CB.**—Internal redecorations and repairs, Technical College, Albert-rd. Boro' A. Dep. £1.

DECEMBER 30.

Sevenoaks UDC.—E&S. (Materials.)

DECEMBER 31.

***Slough BC.**—Installation of grates and renewal of back boilers to 33 dwellings. BE.

Wiltshire CC.—County S. (Materials.)

JANUARY 5.

Wanstead and Woodford BC.—BE&S. (Materials.)

JANUARY 9.

Finsbury MBC.—Materials. (BE.)

JANUARY 14.

Lindsey CC.—County S. (Materials.)

NO DATE.

***Croydon CBC.**—Two groups of garages on sites adjoining Edgecoombe and Freelands-ave., Monks Hill estate. BE. Dep. £1 1s.

ROADS, SEWERAGE AND WATER WORKS

DECEMBER 10.

†Sutton and Cheam BC.—Reconstruction of Worcester Park sewage works. BE, Municipal Offices, High-st., Sutton, Surrey. Dep. £5 5s. Tenders by Jan. 30.

DECEMBER 18.

West Suffolk CC.—Construction of a new road between Lakenheath and Wangford, together with a concrete bridge and culverts. County S, Manor House, Bury St. Edmunds. Dep. £3.

JANUARY 1.

†Hartley Wintney RDC.—Extensions to Odiham sewage disposal works. Howard Humphreys & Sons, Victoria Station House, 191, Victoria-st., SW1. Dep. £5 5s. Tenders by Jan. 11.

JANUARY 8.

Bridgnorth RDC.—Low level water supply scheme—Contract No. 1. A. H. S. Waters, engineer, 25, Temple-row, Birmingham, 2. Dep. £5 5s.

JANUARY 25.

Exmouth UDC.—Black Hill reservoir, capacity 1m. gallons. G. Hill & Sons (Manchester), civil engineers, 51, Mosley-st., Manchester, 2. Dep. £5 5s.

GENERAL BUILDING WORK

(LONDON)

Camberwell.—COMMUNITY CENTRE.—Proposals by BC for the erection of a community centre on the Denmark Hill estate have been approved by LCC planning authorities.

Camberwell.—LIBRARY.—BC are to negotiate for the acquisition of a site at the junction of Peckham Park-rd. and Old Kent-rd. for the erection of library premises incorporating a public meeting hall and public conveniences.

Dagenham. — DWELLING HOUSES. — Subject to MH&LG approval, BC have agreed to release from requisition land on the west side of Albany-rd., Chadwell Heath, for the rebuilding of permanent dwelling houses.

Dagenham.—WORKS EXTENSIONS.—Proposals by G. Hudson (Dagnamica), Ltd., for the extension of their works in Church-st. have been given TP permission.

Dagenham.—OFFICE.—TP approval has been given to proposals by S. Williams & Sons, Ltd., for the erection of an office and loading bay, and extensions to their petrol installations at Dagenham Dock.

Dagenham.—SHOWROOMS.—The erection of showrooms and toilets in Wood-la., Becontree Heath, proposed by Devonish & Co., timber merchants, has received TP permission.

Dagenham.—RESEARCH BUILDING.—Proposals by the Ford Motor Co., Ltd., for the erection of a building for research work at Ford Works, Rainham-rd. South, and a students' instruction room in Kent-ave. have been granted TP approval.

Dagenham.—RESIDENTIAL DEVELOPMENT.—The use of land in New-rd., for residential development has been granted TP approval. The applicants are W. H. Feasey & Sons, bldrs., 295, Eastern-ave., Ilford.

Stoke Newington.—DEVELOPMENT.—MBC has received the following LCC planning approvals, subject in certain cases to minor modifications: Sandbrook-rd./Harcombe-rd. (Stage II, 24 flats); Dynevor-rd (original site) (Stages I and II, 56 flats); Bethune-rd. (original site) (Stage I, 53 flats); 87-123, Lordship-rd. (Stage II, 125 flats); Queen's-dr./Princess-cres. (Stages I and II, 101 flats); Lordship Park/Queen Elizabeth's Walk (Stages I and II, 108 flats). Hsg. Com. recommend that Howes and Jackman, 1, Verulam-bldgs., Gray's Inn, WC1, be appointed the council's architects for the Lordship Park/Queen Elizabeth's Walk and Queen's-dr./Princess-cres. sites.

Stoke Newington.—SITE ACQUISITION.—Hsg. Com. recommend that the sites of No. 58, Bethune-rd. and the sites of the prefabricated bungalows known as Nos. 60-70 (even), Bethune-rd. and Nos. 1-11 (cons.), Bethune-cl. be acquired by compulsory purchase order for the development by the erection of 52 flats. Also the sites of Nos. 1 and 3, Manor-rd. for the erection of 16 flats.

Wimbledon.—HOUSES.—BC has recommended to North Surrey Area Sub-committee that outline application for permission to develop land at rear of "Margin House" and "Windyridge," Marryat-rd., by erection of 26 houses be conditionally approved.

Wimbledon. — TRANSFORMER STATION. — BC has recommended to North Surrey Area Sub-committee that permission be given British Electricity Authority to extend transformer station in Coppermill-la.

Woolwich.—FLATS.—A scheme submitted by BE providing for the erection of eight flats on the land situate between Nos. 284 and 298, Westhorne-ave., Lee (part of Horn Park section, Middle Park Estate), has been approved by Hsg. Co., and MH&LG approval is to be sought.

"THE BUILDER" PRICES

LEAD PAINTS

Associated Lead Manufacturers, Ltd., have issued the following revised basis prices per ton as from 8 a.m., December 1:—

	£	s.	d.
Genuine English dry white lead ..	140	0	0
Genuine ground English white lead ..	155	0	0
Genuine English white lead paint (per gal).	*2	18	0
Genuine refined English red lead ..	122	0	0
Genuine powdered English litharge ..	122	0	0
Genuine English flake and ground flake litharge	124	10	0
Genuine refined English orange lead ..	134	0	0
Genuine refined English red lead in oil	143	15	0
Genuine English red lead Pt. BS. 1011 Type 1 (1 gal. tins)	*2	14	6
English red lead Pt. BS. 1011 Type 2 (1 gal. tins).	*2	3	3

*No change.

LEAD SHEET AND PIPE

Associated Lead Manufacturers have also announced the following revised prices as from 8 a.m., December 1, for lead sheet and pipes delivered England and Wales (*except to undermentioned areas):—

	£	s.	d. per ton	
Sheet lead down £5 5s. to ..	128	10	0	
Lead pipe down £5 5s. to ..	129	15	0	
Ten-eighty-five lead pipe ..	10	0	0	extra
*Delivered to Devon, Cornwall, Isle of Man, Isle of Wight & Channel Islands ..	1	10	0	extra

(PROVINCIAL)

Alnwick.—RDC to start building of 22 houses at Longhoughton and seven at Glanton. Architects, Reavell & Cahill, Lloyds Bank-chbrs., Alnwick.

Amble.—UDC approved layout plans by S, for erection of 14 houses and two old people's bungalows.

Anglesey.—EC received approval for erection of additional classrooms at Llanallgo CP sch., and Caergeiliog CP sch.

Ashington.—UDC to build 75 more houses. Plans by S.

Bakewell.—Licensing Magistrates approved plans for alterations to "Bull's Head," Monyash, for Offilers Brewery Co., Ltd.

Barnard Castle.—RDC seek permission to erect 75 houses next year. Council's A, J. Lawton, 45, Galgate, Barnard Castle.

Bebington.—BE to prepare plans for new library at Higher Bebington.

Billinge and Winstanley.—UDC approved plans for demolition of Empress Cinema, Main-st., for owners, subject to erection of shops and houses on site.

Billingham-on-Tees.—UDC to build 109 more houses. Plans by S.

Billingham-on-Tees.—Plans approved for proposed offices and stores at locomotive sheds for ICI, Ltd., and also amenity buildings at Billingham Bottoms, for ICI, Ltd.—G. Wimpey & Co., Ltd., Orchard House, Jesmond, Newcastle-on-Tyne, contemplating erection of private houses in Melrose-ave.

Birmingham.—TC approved scheme for fire stn. and three houses at Sheldon, £70,875 est.

Bishop Auckland.—UDC to ask MoH to allow building of entire Aclet Hotel on Woodhouse-cl. estate instead of licensed part only.

Blackburn.—Mullard, Ltd., to commence work in the Spring on factory at Simonstone, and to carry out alterations immediately to Britannia Mill, Padiham.—Trustees of St. Peter's Church, Mill Hill, propose erection of church, £28,000 est.

Blackburn.—TC to invite tenders for erection of crematorium at Pleasington Cemetery, £31,000 est.

Blackpool.—BC approved plans for adaptation of Grundy House to residential nursery.

Blaydon-on-Tyne.—Stoddarts (Builders), Ltd., Rowlands Gill, granted block licence for 12 houses in Thornley-la., Lockhaugh Estate, Rowlands Gill.

Blaydon-on-Tyne.—UDC to erect 85 houses in 1954.

Blyth.—TC recommended to seek loan sanction £11,700 for proposed crematorium. BE, D. W. Foster.

Bolton.—BC approved scheme for adaptation of Roy House, Albert-rd., as aged persons' hostel.—EC received Min. approval for erection of Breightmet cty. sec. sch., £185,000 est. Received approval for extensions and improvements at Thomasson Memorial sch.

Bradford.—TC propose fire service control centre adjoining Odsal sch.—Issued licence to M. & V. Shackleton for erection of eight houses at Kingsdale-cres., and to A. Shepherd & Sons (Clayton), Ltd., Victoria Yard, Clayton, for erection of 12 houses at Southmere Oval.

Bridgnorth.—RDC to negotiate tender with W. Sharratt, Ltd., Wolverhampton, for 10 houses at Ditton Priors.—To prepare layout for six houses at Monkhopton estate.

Brighton.—TC to reconstruct administrative office of Transport Dept. in Lewes-rd. Tenders to be invited.

Bromsgrove.—UDC propose 96 houses and 72 flats or 48 maisonettes at Sidemoor; showroom and flats at 208, New-rd., Rubery, for Owens Garage, Ltd.; offices at High-st., for G. Povey.

Carlisle.—TC to negotiate contract with A. S. Nixon, Ltd., for erection of 20 bungalows and 46 houses on Harraby estate.

Cheshire.—CC considering erection of children's family-group homes as follows:—Two at Ellesmere Port area, two at Nantwich and Crewe area, two at Bebington area, two at Macclesfield area, two at Winsford area, two in Tarporley or Chester area, two at Congleton area and one at Northwich area.

Chester.—TC Surveyor to prepare scheme for new crematorium.

Chesterfield.—TC to invite tenders for 15 aged persons' bungalows on Pevensey estate.

Chesterfield.—The Sheepbridge Co., Ltd., propose development of land on north side of Dunston-rd. as site for new slag processing, tarmac and ancillary plant with tipping bank and railways.

Chesterfield.—TC to invite tenders for erection of shops on Calow (Allpits Farm) estate.

Consett.—Tenders will be considered shortly by UDC for erection of shops and flats at Blackhill. Architects, Eltringham & Lowes, Derwent-st., Blackhill.

Consett.—UDC S asked to prepare plans and estimates for erection of terrace houses.

Coventry.—Ind, Coope & Allsopp, Ltd., to erect hotel at Broadgate. Architects, W. S. Hattrell & Partners, Coventry. (Site preparation works begun.)

Darlington.—RDC to build 25 houses next year. S, A. R. Sweetman.

Daventry.—British Timken, Ltd., propose erection of roller-bearing factory off Braunston-rd., near Royal Oak Camp, £1m. est.

Durham.—County EC to build modern sch. at Fishburn. Plans by Cty. A, G. R. Clayton, Court-la., Durham.

Easington.—RDC's estimates for construction of 16 houses at Wingate to cost £21,683 have been approved.

Gateshead.—Corp. to convert residence Briarmede, Earls-dr., into family unit home for 15 children. Plans by Boro' A.

Gateshead.—Father H. Parker, Kelvin-gr., has been granted permission to use site at Lobley Hill for erection of RC church.

Glendale.—RDC has been allocated 35 houses for erection in 1954. Council considering erection of houses by Unity, Ltd., and Gregory Housing, Ltd.

Gosforth (Northumberland).—R. G. Kirkby, 8a, Saville-row, Newcastle-on-Tyne, architect for proposed classrooms adjoining West-ave. Methodist Church, Gosforth.

Halifax.—Leeds Reg. Hospital Brd. propose erection of geriatric unit on site of present Warley House.

Hartlepool.—MH&LG approved BE's estimate £38,602 for erection of 30 houses in Hermit-st.—Walter Willson, Ltd., to erect shop and flat in Warren-rd.—William Younger & Co., Edinburgh, propose licensed premises in King Oswy-dr.

Hebburn-on-Tyne.—J. M. Black, Ltd., builders, Glen-st., plan houses on land adjoining Victoria-rd. West.—UDC considering erection of shops on Campbell Park No. 2 housing site.

Hornsea.—MoW issued building licence £21,829 for erection of garage and bus depot by East Yorkshire Motor Services, Ltd. Plans approved by council.

Houghton-le-Spring.—UDC has been allocated 150 houses for 1954.

Houghton-le-Spring.—UDC seek loan sanction £204,000 for erection of 50 houses on Barnwell estate and 106 on Racecourse estate. W. H. Smith, UDC S.

Leamington Spa.—TC approved layout plans for block of flats on Brunswick-st. Nursery site.

Leeds.—TC approved erection of hostel for aged at Middleton.—Propose bus stn. and parking place at Wockingham-st.

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Liverpool.—Hsg. Com. to seek to acquire an area of about 390 acres at Halewood, adjoining Corporation estate at Speke, and to build 4,000 houses on this site, at est. cost £5¼m. It will take three years to complete the project.—Hsg. Com. also approved lay-out for 2,500 dwellings at West Vale, Kirkby, and it is hoped to make start on it early next year.

Macclesfield.—H. Owen & Sons, Ltd., Stockport, propose residential development at South-dr. and Anglesea-dr., Poynton Park. (Approval not yet received.)

Mansfield.—BC approved plans, extensions to photographic works at Milton-st., for A. C. Vallance, Ltd.—To sell site at Ladybrook estate to Southwell Diocesan Brd. of Finance for erection of church, and site to Trustees of Mansfield Pentecostal Church for Sunday-sch. at Brickkiln-la. and Bosworth-st.—Extensions to ambulance stn. at Racliffe Gate, for Notts CC.—Approved layout for approx. 155 dwellings on Ladybrook estate.

Maryport.—West Cumberland Industrial Development Co., Ltd., 30, Roper-st., Whitehaven, to invite tenders for extensions to factory of Cumberland Childwear, Ltd., Solway estate.

Newcastle.—Lloyds Bank, Newgate-st., to be rebuilt. Architect, C. S. Errington, 46, Grainger-st.—New hotel to be built on Newcastle to Tynemouth Coast-rd., by J. Deuchar, Ltd. Architects, Marshall & Tweedy, Grainger House, Blackett-st.—Hsg. Com. to build 52 flats in five-storey blocks in Hill-st. area Plans by City A, G. Kenyon, 18, Cloth-market, Newcastle.

Northants.—CC propose new health clinic at Rectory Field, Rushden, £12,000 est.

Nottingham.—TC received allocation of 1,100 houses for erection during 1954.

Ormskirk.—BC approved layout for 190 houses in Wigan-rd., and propose two blocks of flats on new estate in Wigan-rd.

Peterlee.—Alexander & Co., Leeds, considering building of factory at new town of Peterlee, Durham.

Rothbury.—RDC approved plans for 20 houses. Plans by S.

Salford.—TC approved expenditure for erection of crematorium at Agecroft of £14,875.

Scalby.—UDC propose 12 flats at Highfield estate. Architects, Alderson & Allen, 32, St. Nicholas-st., Scarborough.

Scarborough.—BC received allocation of 200 houses for 1954.—BE to prepare plans for further aged persons' flats or bungalows on three sites at Barrow-cliff.

Seaham.—Vaux and Associated Breweries, Ltd., The Brewery, Sunderland, have applied to UDC for site on Westlea estate for proposed licensed premises.—Council to acquire 27 acres of land for extension to Parkside housing scheme.

Shardlow.—RDC propose erection of 32 houses at Stanley.

Smethwick.—BC propose erection of four-storey blocks of maisonettes at junction of Beakes-rd. and Stanhope-rd.

Solihull.—UDC approved plans for conversion of chapel at Robin Hood Cemetery as crematorium, £13,000 est.

Southport.—TC granted licence to E. Jackson, Maghull, for erection of 12 houses at Chesterfield-rd. and Salford-rd.

South Shields.—EC to proceed with £36,000 extension scheme at gram. tech. sch. for girls. Architects, T. A. Page, Son & Hill, 75, King-st., South Shields, and quantity surveyor, J. S. Glover, 13, Winchester-st., South Shields.

Stalybridge.—BC approved layout for 1,000 dwellings at Ridge Hill estate. Architects, Howard & Benson, 88, Mosley-st., Manchester.

Stanley (Co. Durham).—UDC S preparing estimates for two-bedroomed houses to be erected under Lintz development scheme.

Stockport.—BC propose expenditure of £220,000 on erection of police buildings on site bounded by Edward-st., Hillgate, and Johns-st.—TC approved plans for RC sec. sch. at Nangreave-rd.

Stockton-on-Tees.—William Jackson & Sons, Ltd., Hull, propose large bakery in Yarm-rd.—J. L. Jobling & Co., Ltd., to develop industrial land in Church-rd.—TC has reserved site in Durham-rd. for proposed health centre and site in Church-rd., for proposed swimming baths.—TC to obtain tenders for erection of 70 houses on Black Farm slum clearance site.—R. Cowan, Finkle-st., Stockton, prepared plans for four houses in Billingham-rd., for J. Bonar.—Tarslag, Ltd., Bowesfield-la., Stockton, to erect laboratory and offices at Bowesfield Orlit Works.

Sunderland.—River Wear Commissioners, St. Thomas-st., plan construction of permanent sea wall at eastern end of sea-lock of Sunderland Docks. Parliamentary approval necessary. Commissioners' E. R. S. Cogdon.

Tynemouth.—TC Hsg. Com. recommended to proceed with proposals for eight shops and two maisonettes at Marden housing estate. BE. D. M. O'Herlihy.

Wallsend.—The appointment of R. Burke, Lambton House, Lambton-rd., Jesmond, Newcastle-on-Tyne, as architect for proposed Wallsend new inf. sch., confirmed by Northumberland EC.

Wallsend.—William Stockdale, 73, Howard-st., North Shields, architect for proposed engineering laboratory and offices in Stephenson-st., for Commercial Plastics, Ltd.

Warrington.—BC to sell sites at Dallam Farm estate to RC Authorities and CoE Authorities for erection of new churches.

Wellington.—UDC to erect 169 houses on Park Walls estate.

Whitley Bay.—UDC S. E. Roberts, prepared £44,000 scheme for extending and reorganising town's slaughter-houses.

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government Departments*.

Altrincham.—Adaptations at Rigby Memorial schs., for Cheshire CC: *W. A. Jones & Son, 11, Atkinson-rd., Sale.

Ashton-under-Lyne.—Erection of RC Church of St. Christopher at Hurst, for Father W. Kelly: *Moston Brick & Building Co., Ltd., Kenyon-la., Collyhurst, Manchester, £15,000.

Atherton.—104 houses and flats at Hag Fold estate, for UDC: *G. & J. Seddon, Ltd., Little Hulton, nr. Bolton, £129,165.

Ayr.—Erection of 62 houses at the Craigie housing site, for Corporation. Thomas O'Brien (A), Corporation-bldgs., High-st., The Sandgate, Ayr: *Weir Housing Corporation, Ltd., Coatbridge.

Barnsley.—Alterations and extensions to public abattoir, for TC: *James Miller & Partners, Ltd., Newmillerdam, nr. Wakefield, £13,147. Houses for TC: *C. D. Potter & Sons, Ltd., £46,114 (30); *Walter Dunk & Sons, Ltd., £147,810 (96); *T. H. Watford, £65,259 (50); *C. F. Ibbotson, Ltd., £83,888 (56); *Direct Labour, £64,700 (46).

Bedlington.—Erection of 32 houses on the Grange Park estate, for UDC. Plans by S: *Direct Labour, £40,830.

Bradford.—10 houses at Haworth-rd., for TC: *Ben Ludlam, Low Ash-rd., Wrose, £12,876.

Bridge-Blean (Kent).—Erection of 8 houses at Adisham, for RDC: *Margate Building and Decorating Co., Ltd., £11,406.

Bridgwater (Somerset).—24 Unity houses at Ringstone, West Huntspill, for RDC: *W. J. Pople & Sons, £29,316.

Bromsgrove.—Six aged persons' bungalows at Withybed-cl., Alvechurch, for RDC: *R. Kemp (Builders), Ltd., £7,113.

Carluke and Tannockside.—Erection of 64 houses on the Crawfordyke housing site, Carluke, for Lanarkshire CC. Samuel MacColl (A), housing architect, County-chbrs., Beckford-st., Hamilton West; *A. A. Stuart & Sons (Glasgow), Ltd., £111,810.

Carshalton.—24 flats on site No. 33, Grove-la., for UDC. Quantities by E. C. Harris & Ptnrs.: *M. Howard (Mitcham), Ltd., Wandle House, London-rd., Mitcham, Surrey, £38,372.

Clowne.—Four houses at King-st., Whitwell, for RDC: *Henry Frost, Ltd., Thurcroft, £5,560.

Darlaston.—Construction of a new shopping centre at Bentley estate, for UDC: *Rock & Downs, Ltd., 115, Walsall-rd., Aldridge, £48,111.

Durham.—Erection of new Shotley Bridge cty. sch., for EC. Cty. A, G. R. Clayton, Court-la., Durham: *R. Gallacher, Ltd., Blackhill, £34,300.

Glendale.—Erection of four houses at Bowsden, for RDC: *J. Tully, Wooler.

Hackney.—Erection of 6 dwellings on the Mount Pleasant-la. (Nos. 135-137) housing site, for BC: ‡Direct labour, £8,486.

Hartismere.—Two pairs of houses and one block of four houses with lay-by and public footpaths at Stradbroke, for RDC. H. Spindler, Housing Officer, Housing Dept., Lambseth-st., Eye. Quantities by Parmenter, Caston & Parritt: *C. H. Comber, Bungay-rd., Scole, Norfolk, £10,713; site works, £149.

Islington BC.—Erection of 57 dwellings on the Whadcoat-st. housing scheme (stage 1): ‡M. Howard (Mitcham), Ltd., Wandle House, London-rd., Mitcham, £103,897. (Previously accepted tender withdrawn.)

Jarrow-on-Tyne.—Erection of 30 bungalows and one common room north of Hadrian-rd., for TC. BE, H. W. T. Perkins, Town Hall: *Direct Labour, £27,370.

¶London (Air Ministry).—Contracts to value of £500 or over for week ended November 28.

Building works: Geo. Wimpey & Co., Ltd., Hammersmith-gr., W6; Scottish Aviation, Ltd., Prestwick Airport, Ayrshire; E. Taylor & Co., Ltd., Littleborough, Lancs; James Miller & Ptnrs., Ltd., 18, George-st., Edinburgh 2; Haymills (Contractors), Hanger Green, Western-ave., W5; W. & J. Taggart, Dunluce-st., Portrush, Co. Antrim, N. Ireland; Thomas Broad, Ltd., Graham Works, Malvern, Worcs; Robert Watson & Co. (Const. Engs.), Ltd., Filton, Bristol. *Construction of hardstandings*: Thos. Lowe & Sons, Ltd., Broadway-chbrs., Hammersmith, W6. *Construction of hardstandings and building work*: Richard Costain, Ltd., Dolphin-sq., SW1. *Construction of refuelling facilities*: Farrans, Ltd., 78, Mount-st., W1.

Painting work: Wm. Herd & Co., Ltd., Batemans-row, EC2; Industrial & Decorative Arts Co., Ltd., Elm Tree-st., Mansfield, Notts; S. C. Grover, Ltd., Grange Works, Clinton-rd., Forest Gate, E7; Holland & Hannen and Cubitts, Ltd., Gray's Inn-rd., WC1. *Resurfacing work*: Wirksworth Quarries, Ltd., 286, Pentonville-rd., N1; Western Trinidad Lake Asphalt Co., Ltd., St. Mary-st., Cardiff; General Asphalte Co., Ltd., Grafton-rd., NW5; Allweather Mechanical Grouting Co., Ltd., 47, Victoria-st., SW1; Thos. Ashley (Contractors), Ltd., 314, Chester-rd., Hertford, Northwich, Cheshire. *Heating and ventilating services*: G. N. Haden & Sons, Ltd., 19-20, Woburn-pl., WC1. *Heating services*: Rosser & Russell, Ltd., 342, Bradford-st., Birmingham 5. *General maintenance work*: Goddard & Phillips, Ltd., 118a, Highgate-rd., NW5.

London (British Railways).—Contracts placed by the Eastern Region of British Railways.

Renewal and repairs to station roof at Sheffield (Midland) station, *George Simpson (London), 53, Ebury-st., SW1. Cleaning and painting of warehouse, loading bank, etc., at Bishopsgate goods depot, *R. Ridd & Son (Contractors), Ltd., 153, Billet-la., Hornchurch, Essex. Modifications to 1st and 2nd class passenger accommodation, etc., on s.s. *Arnhem*, *John I. Thorneycroft & Co., Ltd., Repairs Department, Southampton Docks.

Reconstruction of the superstructure of underline bridge No. 75 over river Witham between Lincoln (St. Marks) and Hykeham, *The Cleveland Bridge & Engineering Co., Ltd., Darlington. Cleaning and painting of station buildings, etc., and bridges between Pitsea junction and London side of Southend-on-Sea (Central) station, *W. R. Payne & Sons, Lingerfield, Shipley, Yorks.

LCC.—Extending Holloway cty. sec. sch. (Islington North) by the erection of new buildings to provide about another 800 places.

E. H. Smith (Croydon), Ltd., Croydon	£236,007
Stewart & Partners, Ltd., St. Marylebone	230,481
A. T. Rowley (London), Ltd., Tottenham	228,593
Thomas & Edge, Ltd., Woolwich	228,313
F. R. Hipperson & Son, Ltd., Dagenham	228,244
R. J. Rowley, Ltd., Tottenham	227,280
Gee, Walker Slater, Ltd., Westminster	221,388
Rush & Tompkins, Ltd., Sidcup	220,841
G. E. Wallis & Sons, Ltd., Westminster	219,206
C. P. Roberts & Co., Ltd., Holborn	213,965
*Halse & Sons, Ltd., Woolwich	209,777

The architect's comparable estimate is £217,992.

LCC.—Repair of war damage and ancillary works at William Penn cty. sec. sch. (Camberwell, Dulwich).

J. A. Dumayne & Co., Ltd., Southwark	£27,543
Hunter & Clark (Southern), Ltd., Battersea	27,314
J. C. Bowyer, Ltd., Upper Norwood	26,895
Whyatt (Builders), Ltd., Streatham	26,115
Kerridge (Cambridge), Ltd., Catford	24,840
Flowitt & Co., Ltd., Merton	24,029
*Wm. Blood, Ltd., Lambeth	23,337

The architect's comparable estimate is £26,199, but it includes a sum for certain specialist works not included in the tender. The lowest tenderer, Wm. Blood, Ltd., is prepared to carry out these extra works for £1,052.

LCC.—Construction of a block of eight houses and other work at Friary estate, Camberwell.

William Mills & Sons, Ltd., Greenwich	£23,528
Wm. J. Jerram, Ltd., East Ham	20,073
J. & R. Rooff, Ltd., Plaistow	19,630
Flowitt & Co., Ltd., Wimbledon	19,590
Whyatt (Builders), Ltd., Wandsworth	19,547
Woodcock Bros. (Wimbledon), Ltd., Wimbledon	19,117
Kerridge (Cambridge), Ltd., Cambridge	17,971
M. Howard (Mitcham), Ltd., Mitcham	17,190
*Field Davis, Ltd., Barking	17,190

The architect's comparable estimate is £17,582.

LCC.—Construction of 112 flats and 84 maisonettes in five five-storey and three four-storey blocks, 19 houses and a single-storey block of shops and other work at Lawson estate, Southwark.

Higgs & Hill, Ltd., Lambeth	£557,27
Patman & Fotheringham, Ltd., Islington	557,24
Richard Costain, Ltd., Westminster	549,47
Trollope & Colls, Ltd., Holborn	546,20
Leslie & Co., Ltd., Kensington	545,01
Allen Fairhead & Sons, Ltd., Enfield	543,59
John Laing Son, Ltd., Mill Hill	543,09
Walter Lawrence & Son, Ltd., Finsbury	542,78
James Longley & Co., Ltd., Crawley	542,30

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Thomas & Edge, Ltd., Woolwich	538,020
*William Willett, Ltd., Chelsea	512,590

(After arithmetical correction)

The comparable estimate of the appointed architects, Sir John Burnet, Tait & Ptnrs., is £537,519.

LCC.—Construction of the superstructure of block 20 of flats and part of block 19, and for other work at Berner estate (Crellin-st. site), Stepney.

Thomas Bates & Son, Ltd., Romford	£75,893
Walter Llewellyn & Sons, Ltd., EC4	74,968
W. J. Marston & Son, Ltd., Fulham	73,986
Rowley Bros., Ltd., Tottenham	72,073
Thomas & Edge, Ltd., Woolwich	71,370
F. R. Hipperson & Son, Ltd., Dagenham	71,258
J. M. Hill & Sons, Ltd., Wembley	70,493
R. J. Rowley, Ltd., Tottenham	70,456
*A. T. Rowley (London), Ltd., Tottenham	69,292

The architect's comparable estimate is £70,720.

LCC.—Erection of a cty. prim. sch. in Montbelle-rd. (Woolwich West).

W. H. Gaze & Sons, Ltd., Kingston-upon-Thames	£51,748
Whyatt (Builders), Ltd., Streatham	48,357
Thomas & Edge, Ltd., Woolwich	47,691
A. T. Rowley (London), Ltd., Tottenham	47,322
Clarke, Barton & Co., Ltd., Belmont	46,546
Halse & Sons, Ltd., Woolwich	46,508
*E. H. Smith (Croydon), Ltd., Croydon	45,940

The architect's comparable estimate is £45,625.

London (Metropolitan Police).—Contracts placed by Metropolitan Police:—Internal redecorations at Broomleigh, Tweedy-rd., Bromley, Kent: *J. Scott Fenns, £1,387. Internal and external redecorations and repairs at 40, Nella-rd., Fulham, SW6: *Apletree & Son, £323. External and internal redecorations at Earlsfield police stn.: *W. Grover, £718.

Mansfield.—48 flats at Ladybrook estate, for BC: *Gregory Housing, Ltd., £65,057; 52 houses: ‡Direct Labour. (Recommended subject to MoH approval.)

Newcastle-on-Tyne.—Removal of timber jetty and construction of steel sheet piled retaining wall at the Invicta Works of Aveling-Barford, Ltd.: *Purdie, Lumsden & Co., Ltd., 25, Oxford-st., Newcastle-on-Tyne.

Newcastle-on-Tyne.—Erection of transfer depot at Benwell refuse destructor, for City C. P. Parr, City E. *Direct Labour, £9,000.

Newport (Salop).—34 houses and site works at Long Meadow site, for UDC: *Sir Alfred McAlpine & Son, Ltd., £44,989.

Northumberland.—Subtrades for the new Longbenton sch. (Unit No. 2), for EC. Roof tiling: *Nelsons, Ltd., Station-st., Blyth; plumbing: *Rowells, Ltd., Byron-st., Newcastle; and glazing: *G. M. Dryden, Ltd., Howard-st., North Shields.

Sheffield.—New premises at Attercliffe-rd., for Barclays Bank, Ltd.: *Tom Holmes & Sons, Ltd., Bradway, Sheffield.

Stone.—58 houses at Eaveshall, for RDC: *P. Prendergast, Ltd., 35, North-st., Newcastle, Staffs, £85,693.

Sunderland.—Erection of 22 houses at Grindon, for TC. H. C. Bishop, Boro' A: *Stewart Bros., Frederick-st., Sunderland.

Sutton and Cheam.—21 houses at Gander Green-la., for BC. N. H. Michell, AMICE, MIMunE, BE&S. Quantities by Arthur J. Willis & Thompson.

Greenwood & Sons, Ltd.	£53,993
Burles (London), Ltd.	48,934
Ultra, Ltd.	47,259
J. Garrett & Son, Ltd.	46,308
H. F. S. Ward, Ltd.	45,928
Robertson & Cameron, Ltd.	45,221
Clarke Barton & Co., Ltd.	44,901
Cannon & Roaf, Ltd.	43,000
Lewood (Ditton), Ltd.	41,145
J. Cartwright, Ltd.	40,517
Orchard & Peer (London), Ltd.	40,271
H. J. Riche & Son, Ltd.	39,723
*Snelling & Rayment	39,365

(Subject to MoH&LG approval.)

Tynemouth.—Erection of 16 flats at Redburn View, for TC: *J. H. Rogers, Regent-ter., North Shields, £17,565.

Walsall.—Erection of stage 2 of the Walsall and Staffordshire tech. col., for EC: *J. & F. Wootton, Ltd., Bloxwich, £120,495.

Wolverhampton.—Houses at Wednesfield, Site No. 2, for BC: *E. Tonks, 42, Prestwood-rd. West, £37,555 (29); *J. S. Rock & Co., Ltd., Little Pountney-st., £33,810 (30); *A. Poole, Son & Co., Hadrian-chbrs., Skinner-st., £32,926 (24); *R. Hallett & Sons, Manby-st., £23,866 (10); 17 at Tettenhall, Site No. 2: *Shutt & Co., Ltd., Old Bank-chbrs., Lich Gates, £22,525. (All of the above are extensions to present contracts.)

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